

FACTS AND PHASES

OF

ANIMAL LIFE,

AND THE

CLAIMS OF ANIMALS TO HUMANE TREATMENT.

INTERSPERSED WITH

AMUSING AND ORIGINAL ANECDOTES.

BY

VERNON S. MORWOOD,

LECTURER TO THE ROYAL SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.

'Go forth under the open sky, and list
To Nature's teachings.'
BRYANT ('*Thanatopsis*').

WITH SEVENTY-FIVE WOOD ENGRAVINGS.

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PREFACE.



S the following pages have been written principally for the young, the author has endeavoured to describe, in simple language, the marvellous organization, the instinct, memory, sagacity, and inventive faculties of some of the animals and insects of our own country.

The fidelity, love, affection, and other pleasing characteristics which all animals exhibit, more or less, one to another, are specially referred to, with the hope that they may tend to lessen the aversion with which *some* animals are undeservedly regarded.

Several amusing and useful anecdotes, many of which are original, and others selected from undoubted authorities, have likewise been introduced, which may help the reader to form a proper estimate of the animals to which they refer,

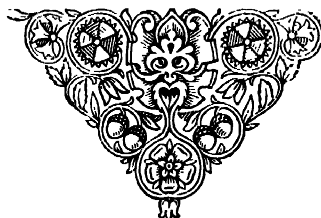
and to see in them wonderful proofs of the power and beneficence of an all-wise Creator.

The writer may add, that while this volume may contain something to inform and entertain the mind, his object has also been to show that, as animals are members of the same creaturehood as ourselves, and in various ways contribute so much to our pleasure, profit, and convenience, it is our duty to be humane to them, as far as it may be in our power to be so, and to remember that

'Sweet mercy is nobility's true badge,'

and that it confers real dignity upon those who wear it.

V. S. M.





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CLASSIFICATION OF ANIMALS.

NATURAL historians have divided animals into different orders or classes, distinguished from each other principally by their physical organization and peculiarities of structure, arranged as follows:

Bimana—two-handed, including men of all kinds, and living in every part of the world.

Quadrumana—four-handed, comprising the ape family.

Quadrupeds—which include all four-footed beasts.

Aves or **Birds**—known as bipeds, and the order of vertebrated animals next to quadrupeds.

Fish—the natives of our seas, rivers, lakes, and ponds.

Reptilia—in which are comprehended serpents, snakes, turtle, tortoise, and other animals that live both on land and water.

Insects—which refer to all those creatures which come to a perfect state of existence by a metamorphosis process.





GLOSSARY

EXPLANATORY OF TERMS USED IN THIS VOLUME.

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Amphibious—Having the power of living either on the land or in the water - 26

Animalculæ—Animals so small as to be seen only by the aid of the microscope - 259

Antennæ—Organs of touch, or feelers, attached to the heads of insects 46

Aquatic—Pertaining to water. A plant or animal that lives and grows in that element - 29

Articulated—Having a jointed structure, but no internal skeleton, as shell-fish - 25

Biped—An animal that has only two feet, as man. Birds are called 'feathered bipeds' - 244

Bivalve—Any animal having two shells to open and shut, as an oyster, cockle, etc. - 25

Bovidæ—Comprising oxen and cows, and other hollow-horned, ruminating animals - 162

Cartilaginous—That which is gristly, as the nose of a pig, mole, badger, or that of any other burrowing animal - 151

Carnivora—Animals that feed on flesh, as lions, tigers, etc., and birds of prey - 21

Chrysalis—The second metamorphosis of an insect before it becomes a butterfly or moth, etc. - 32

Concentric—Having a common centre, as the lines in the geometric spider's web - 42

stacea—One of the classes of articulated animals, including crabs, obsters, crayfish, etc. - 25

igrade—An animal that steps or walks on its toes, as the dog, etc. 212

Dipiera—Insects whose mouths are formed for suction only, as gnats, mosquitoes, gad flies, etc. - 61

Embryo—First rudiments of an animal - 118

Ephemera—A fly that lives one day only. A short-lived insect -

Feline—Pertaining to cats, leopards, lynxes, and other carnivorous mammalia - 223

Gyrations—A turning or whirling round; a circular motion - 85

Habitat—The home of an animal, or the locality where it generally resides - 172

Herbivorous—Eating herbs and feeding upon vegetables - 134

Hybernate—To pass the winter in seclusion and continuous rest, without coming out to look for food, as is the case with bats, hedgehogs, and other animals - 147

Hymenoptera—In entomology a term applied to insects, like the bee, having four membraneous wings - 33

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Imago—The last or perfect state of an insect, when it becomes a true representative of its species - - - - 32
Insectivora—Small vertebrated quadrupeds, such as the hedgehog, shrew-mouse, and many birds, who live upon insects - - 129
Instinct—An impulse common to all animals, which prompts them, without education, to do what is necessary for existence, self-protection, and the perpetuation of their own kind - - 178
Lamina—A fleshy substance of a spongy nature, lying between the hoof and the coffin-bone in the interior of a horse's foot - 235
Larva—An insect in the caterpillar or grub state - - - 32
Ligament—A strong substance which in animal bodies binds one bone to another - - - - - - - 70
Mammalia—Animals that suckle their young, and bring them forth alive, as the cat, the cow, the sheep, etc. - - - 140
Mandible—The lower jaw of vertebrates, both jaws of birds, upper jaw of invertebrata - - - - - - - 34
Membrane—A thin transparent tissue, to cover some part of the body 70
Metamorphosis—Change in the form and functions of a living body by growth, as in insects - - - - - - 32
Nocturnal—Animals that sleep, or are concealed by day, but come out at night, are known as nocturnal ones - - - - 149
Olfactory—Pertaining to the sense of smelling - - - 151
Omnivorous—Eating all kinds of food - - - - 119
Organism—Organical structure composed of organs capable of special functions, as the organ of hearing, seeing, and of the heart and lungs of an animal body - - - - - - 32
Oviparous—Producing eggs, as fowls, and birds of every kind -
Physiology—The science which treats of organized beings, whether animals or vegetables - - - - - - 265
Proboscis—A hollow tube projecting from the head of the elephant and other animals. It is formed on the suction principle, capable of sucking up fluids - - - - - - 52
Psychology—Relating to the soul, or that property of living things which is superior to their physical nature - - - 185
Pupa—An insect in the quiescent state of its existence - - 32
Raptorial—Rapacious. Birds of prey who suddenly pounce upon and destroy their victims - - - - - - 72
Reptilia—Comprising tortoises, lizards, serpents, and other creeping animals - - - - - - - - 29
Rodentia—Animals that are furnished with sharp front teeth for gnawing, as squirrels, mice, rats, beavers, etc. - - - 21
Ruminants—An order of animals with four stomachs, which chew the cud - - - - - - - - 52
Structural—Pertaining to structure ; peculiar organization of animals or vegetables - - - - - - - 212
Thorax—That portion of the trunk between the neck and abdomen, the middle segment of insects, to which their wings are attached - 32
Ungulata—Comprising all those animals that are furnished with hoofs 162
Urchin—A provincial name given to the common hedgehog - 145
Vertebrate—An animal with a backbone, including mammals, birds, fishes, and reptiles - - - - - - 67
Vespiary—A nest or habitation of wasps, hornets, etc. - - 57
Viviparous—Producing young in a living state, opposed to oviparous
Zoophyte—A term applied to simple polyps, which form the connecting link between plants and animals, as corals, sponges, etc. - 256

INSECTS AND ANIMALS REFERRED TO IN THIS VOLUME.



FACTS AND PHASES OF ANIMAL LIFE.

CHAPTER I.

WONDERFUL FACTS ABOUT ANIMALS.



THE world in which we live is not only adorned with beauty and rich in mineral treasures, but it is also full of animal life. Beneath its surface, in its thick jungles, on its rocky steeps, in the depths of its wide oceans, rivers, and streams, in its far-extended deserts and interminable forests, and even in the air we breathe, are animals of every size, beauty, and colour, all of whom are in their structure adapted to their necessities and places in nature, while in the life and habits of all of them we have proofs of divine wisdom, intelligence, and beneficence.

From the remotest ages to the present time animals have, in some way or other, been identified with great historical events, and with the customs, rites, ceremonies, and superstitions of the different nations of the earth.

We read in the Bible that God frequently employed them as agents in the dispensations of His providence. When the earth was enveloped in water Noah sent out a *raven* and a *dove* that he might ascertain by them whether the flood was abating or not. In their journeyings through the wilderness the Israelites were fed by *quails.* The *bullock*, *goat*, *sheep*, and *fowls* were used by the Jews in their religious services.

A prophet in seclusion was supported by *ravens*, and a disobedient one was slain by a *lion.*

An *ass* reproved Balaam for cruelty. David called upon *animals* to join in celebrating the praises of Jehovah. Solomon advises the sluggard to 'go to the *ant*' to learn industry. He points out the uncertainty and fugitive character of riches by the flight of an *eagle;* and he says, 'Wine at the last biteth like a *serpent*, and stingeth like an *adder*.' To teach us to be grateful for common mercies Isaiah says, 'The *ox* knoweth his owner, and the *ass* his master's crib,' etc. Although the city of Nineveh was threatened with destruction, yet God had pity on it because there was much *cattle* there.

The Saviour compares His own earthly condition with that of animals: 'The *foxes* have holes, and the *birds* of the air have nests,' etc. He assures us of the tender care of our heavenly Father over the humblest of His creatures by saying, 'Not a *sparrow* falleth to the ground without His notice.' He rode upon an *ass* into Jerusalem, and calls Himself the 'Good Shepherd,' and His followers the *sheep* who know His voice. He told the Apostle Peter that before the '*cock* crowed twice he would deny Him thrice.' John the Baptist gave Him the appellation of 'the *Lamb* of God.' John, the beloved disciple, when on the Isle of Patmos, saw the 'throne of God in heaven, and before it a *lion*, a *calf*, a *man*, and a flying *eagle*.'

In many other parts of the Old and New Testaments animals are spoken of as being closely connected with some of the important events recorded therein. These facts invest the study of animal life with considerable importance and interest, and should command our closest attention. We learn from Ward's 'Natural History of Mankind' that amongst the heathen and barbarous races of men animals are identified with their religious rites and ceremonies, and associated with their ideas of the happiness and misery of a future state.

The Esquimaux believe that in the abode of their principal spirit Torngarsuk, which is under the ocean, are fine *seals*, *fish*, and *fowl*, easy to be caught and found boiling in a large kettle.

One nation worships a *tiger*, another an *elephant's* tooth, or *serpents* of gigantic size. New Zealanders believe in an invisible spirit, which they say manifests itself in the shape of

a *lizard*, a *bird*, or *insect*. The Fejee Islanders worship Udengi, a great *serpent*.

The Choctaws of the American Indians say the wicked are exposed to a place where the water is full of *toads*, *snakes*, dead *fish*, and other *animals*. The Mexicans think the souls of the brave after death inhabit the bodies of beautiful *birds* and noble *quadrupeds*, while inferior persons become *weasels*, *beetles*, and meaner *animals*. The Hindoos entertain similar notions.

In some countries certain *animals* are regarded as sacred, are much venerated, and therefore protected. Such is the case with the *ibis* in Egypt, the *stork* in Holland, the *adjutant*, the *cow*, and the *monkey* in India, the *owl* in Tartary, and the *robin redbreast* in England. And in most parts of the world ignorant people have always entertained superstitious notions respecting the appearance and noises made by some kinds of *animals*.

Animals as emblems of individual and national character have been employed in every age and country. The once-buried ruins of Nineveh, Babylon, and the ancient cities of America, testify to this, corroborative evidence of which we have in our British Museum, and in other repositories of a similar kind.

Many different kinds of animals are represented on the heraldry of our nobility and aristocracy. The forms of many of them stand conspicuous on our public monuments, and they ornament the bows of numbers of our largest and fleetest ships. The artist has painted some animals on canvas, and the sculptor has chiselled blocks of stone and marble into all but perfect resemblances of others, until they have looked as if ready to start into life. Likenesses of animals have been made by commercial men the silent indicators of their business, and the distinguishing marks of its precise locality.

Many of our hotels, taverns, and inns have as signs the following animals: Black Horse, White Horse, Lion, Bear, Bull, Fox, Greyhound, Red Cow, Spread Eagle, Bird in Hand, Three Crows, Magpie and Stump, Pheasant, Peacock, Hen and Chickens, Reindeer, Coach and Horses, Dolphin, Blue Boar, Dog, Hare and Hounds, Goose and Gridiron, Pig and Whistle, Pig and Carrot, Swan with two Necks, Lamb and Flag, Beehive, Goat and Compasses, Cat and Fiddle, Antelope, Pelican, Cock, Elephant and Castle, Roe-

buck, Stagg, Ram, Salmon, Cow and Calf, Dog and Duck, Falcon, Fish and Bell, Lamb and Hare, Lamb and Lark, Leopard, Mallard, Nag's Head, Porcupine, Ram and Magpie, Three Cranes, Three Doves, Three Pigeons and Star, Tiger, White Hart, Nightingale, Blackcap, Buffalo's Head, Cock and Magpie, Cock and Lion, and others.

England finds a national emblem in the *lion*, the king of *beasts*, and Russia, Austria, France, and America in the towering *eagle.* In pagan and Mahometan festivals *animals* take a conspicuous part. We often express our opinions of others by referring to the characteristics of different *animals.* We say such a man is as 'bold as a *lion,*' that another is as 'gentle as a *dove,*' the third 'as cunning as a *fox,*' while many people we suppose to be as 'harmless as *sheep*' and as 'innocent as *lambs.*'

The names of many of the lower animals are of common use as surnames, in this and other countries. The following are some of them :

There's Mr. Salmon, Roach, and Whale ;
The Martins, Swifts, and Swallows ;
The Wrens, the Ravens, Eagles, Doves ;
And many Mr. Sparrows.

There's Mr. Badger, Grubb, and Lark ;
The Rooks, Drakes, Swans, and Buzzards ;
The Bullocks, Crows, and Nightingales ;
Some Herings, Spratts, and Mallards.

There's Mr. Gosling, Fish, and Fox ;
The Peacocks, Moles, and Widgeons ;
The Parrots, Cranes, and Partridges ;
The Rabbits, Jays, and Pigeons.

There's Mr. Finch, Wolff, Chubb, and Stagg ;
The Starlings, Kidds, and Perches ;
The Condors, Crabbs, the Ruffs, the Reeves ;
Some Beavers, Gulls, and Leeches.

In the sublime science of astronomy the constellations are known by the names of various animals. Some in the north are called the Greater and Lesser *Bear*, the *Dragon*, the *Hounds*, the *Swan*, *Fox*, *Goose*, *Lizard*, *Camelopard*, the *Serpent*, *Eagle*, *Dolphin*, the Little *Horse*, the Lesser *Lion*, and the *Fly*.

Some of the southern constellations bear the names of the *Whale*, the Lesser *Dog*, the *Bird of Paradise*, the *Raven*, *Wolf*, *Peacock*, *Crane*, *Hare*, *Dove*, *Dog*, *Bee*, *Swallow*, *Flying and Sword-fish.*

The signs of the Zodiac contain them : there is the *Ram*, the *Bull*, the *Crab*, the *Lion*, the *Scorpion*, the *Goat*, and *Fishes*. Thus, with sacred and profane history; with the religious notions and worship of mankind; with our customs, pleasures, and commercial life; with many of the heavenly bodies, and even with some of our superstitions and many of our surnames, are animals closely identified.

Although, as we have before mentioned, the world is very beautiful, yet what would it be without its almost endless forms of animal existences? without them, life, to human beings, would be comparatively dull, monotonous, and almost irksome.

But man is not left destitute of sources of attraction and interest. Animal intelligences meet him everywhere, to furnish him with subjects of study and contemplation. The more he looks into Nature, animate and inanimate, the more he will see her beauties unfolded, and her deep, silent mysteries unravelled.

The following estimate of the number and classification of animals is both curious and wonderful. There are of—

	Species.
Quadrumana (Monkeys)	170
Marsupiata (Pouched)	123
Edentata (Without front teeth)	28
Pachydermata (Thick-skinned)	39
Carnivora (Flesh-eating)	514
Rodentia (Gnawers)	604
Ruminantia (Chew the cud)	180
Birds (All kinds)	6266
Reptiles (Snakes)	657
Turtles	8
Sea Snakes	7
Insects	550,000
Total	558,596

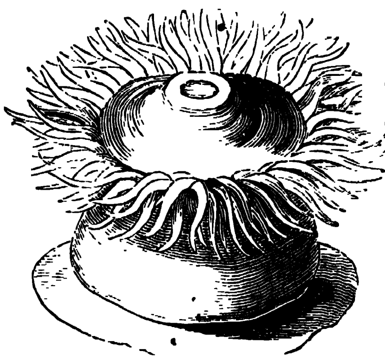
What a world of wonders, beauty, and even music, exists in the numerous tribes of animals above referred to! It will be well to remember that 'the Monarch and Maker of all' is the Father of them as well as of ourselves; that they belong to Him, and are the objects of His care. This is beautifully expressed in the Sacred Volume: 'These wait all upon thee, that thou mayest give them their meat in due season' (Psa. civ. 27).



CHAPTER II.

AT THE BOTTOM OF THE SEA.

AKING an imaginative plunge into the sea, we may fancy ourselves standing on the floor of it, in full view of some rugged shelving rocks, dotted here and there with what look like vegetable productions of many and brilliant colours. These animals are classified as *Radiata*, and are found in almost every part of the world of waters. Many varieties of them may be seen in the aquariums of this and other countries. They are beautiful to look at, and very interesting objects of study.



Purple Sea-Anemone.

One of these animals is named the *Sea-Anemone*, probably from its resemblance, in shape, to the wind-flower. The body is a pulpy substance, and has a cavity in the centre of it. It is furnished with arms or tentacles several inches in length, all of which are tubular, with a minute orifice at their extremities. The locomotive abilities of this creature are of the poorest kind. It seldom moves from one place to another, and when it does so it travels about an inch in five minutes.

Gentle as it appears, it is very voracious. It will wait with extended arms for a small crab or mussel, then, when it is within its grasp, it will close its tentacles round it as the fowler would his net round a bird, then force its prey down the cavity into its stomach, devour the soft parts, and afterwards disgorge the shell.

The *Sea-Anemone* is very tenacious of life. No cutting, if the base is not interfered with, can deprive it of life; it can endure any amount of laceration without apparent injury, and in a short space of time will appear as if it had not been meddled with. In each tentacle are cells, in each cell is a coiled thread; when the cells are pressed these threads will come out like long wiry darts, and when they pierce the human skin, will produce blisters and pustules.

Is it not wonderful that this animal, apparently without head and eyes, with but little power to move, not only knows by the sense of touch the food suitable for it, but that it should possess within its strangely-shaped body the means of defending itself against others, and certainly of inflicting suffering upon much higher forms of animal life than itself? From this we may learn that nothing God has endowed with life should be regarded as unworthy of our notice, because the lowest of all living things constitutes one link in 'Nature's endless chain,' and helps to give variety to her wonderful works.

Sponge, that useful and necessary appendage of the toilet, and an article of great service in other respects, is another obscure grade of animal life, which in its native element, the sea, appears so close to the confines of the vegetable world, that it is difficult to know whether it belongs to it or to the animal kingdom. Pliny and others believed sponges to be so sensitive that they would evade the hand that tried to seize them, and cling to the rock so tenaciously as to resist the effort made to detach them. There are many kinds of sponges, differing in size, form, colour, texture, and quality, and therefore in value. The toilet sponge is sometimes sold for forty shillings the pound, which restricts its use to all but the very wealthy. The homes of sponges are among clefts and crevices of rocks, at the bottom of the seas, often twenty fathoms below the surface. Sponges of inferior quality are found in shallow waters. Different plans are adopted in sponge-fishing; the principal and most successful one being

that of men diving for them. These men generally use a knife in cutting them from the rock to which they may be attached. This mode of gathering sponges secures a higher price for them than can be obtained by harpooning them, which *tears* them from their native rock and so lessens their value.

As vegetable-like animal productions found in our seas are too numerous to refer to, in detail, within the narrow limits of this rudimentary natural history, we may add but one more kind, known as *Jelly-fishes*, of which a writer says: 'They



Jelly-fish.

consist generally, when full-grown, of a large, circular, gelatinous disc, convex above, and somewhat concave on the under surface from which the feeding organs hang pendent.' Strange to say, little fishes, alarmed by the sight of an enemy, rush under this mushroom or umbrella-like form, and remain until the danger is past, and then emerge, again to sport and play about their sheltering friend. The jelly-fish is furnished with eyes of a deep red tint.

The treasures of the deep seas are almost innumerable, and comprise much higher forms of life than those we have described. Some of them belong to the articulated class of animals, the others to the Vertebrated. Crabs, lobsters, shrimps, and oysters are included in the former class. Although they move very slowly, nature has given them coats of scales and shells as a protection against other animals, who would very soon devour and exterminate them.

The majority of the inhabitants of the 'great deep' belong to the vertebrata, or to the 'finny tribes' possessing a spine or backbone. From the tiny *whitebait* to the huge *whale*, every kind of fish is adapted, in its structure, to pass its life in the water. The cornea of the eye is flat, which renders it less likely to wear away. Had the eye been globular and prominent, like the eyes of some animals, it would have been more liable to injury in passing through so dense a medium as water. Nearly all fish possess an air-bladder, which they can fill and empty at pleasure, to make their bodies more or less buoyant. Their tails and fins are the great instruments of steadiness and motion.

The fecundity of fish is marvellous. 'The eggs laid by a single *herring* at a spawning are about 36,000 in number; those by a *carp* 205,000; by a *flounder* 1,337,000; by a *mackerel* 546,000; by a *sole* 100,000; and by a *cod*-fish 3.344,000.' Some kinds of fish have been known to live to a great age A *carp* more than 100 years; *crocodiles* 100; the *dolphin* 30; *eel* 10; *porpoise* 30; and Gesner says that a *pike* was once known to be 267 years old. Although fish are considered to be the lowest order of vertebrated animals, they have been taught to gather for feeding at the sound of a bell, which implies memory. A *cod*-fish, it is stated, was once fed with mussels by the hand; but one was thrown into a basin which was too small to admit the large head of the fish for his mouth to reach the bottom. Finding this to be the difficulty, and being determined to have the mussel, the *cod* blew with great force, which brought the mussel up the side of the basin, and it was then seized immediately.

When we consider that naturalists have discovered 13,000 species of fish, one might almost suppose this planet had been created purposely for them. The sea is indeed wonderful to contemplate.



CHAPTER III.

A HUNT IN OUR DITCHES AND HORSEPONDS.

S our hunting expedition will not be a cruel one, but rather of a pleasurable and interesting kind, we ask our young readers to take a stroll with us through some country lane, to examine the stagnant water of its ditches; or to some farmstead, to look upon the surface of its adjacent horsepond.

The question may then be asked, What are those numbers of jelly-like substances, dotted with black spots, resting, or floating, here and there upon them? Each black spot is the egg of a *frog*, surrounded with a gelatinous substance, covering about a quarter of an inch in diameter.



Frog.

When the eggs are well developed they separate, each remaining in a jelly-like globe. When the grub appears, it has a large head and a flat tail, and is called a *tadpole*. The eyes soon increase in size, the mouth enlarges, and the lips begin to move. It may then be seen actively engaged in seeking food to satisfy its ravenous appetite. In a few weeks the hind-legs appear, then the fore-legs, after which the tail becomes absorbed in the body, and the animal assumes the shape of a perfect frog. After living in the water some time longer, it becomes amphibious.

'The muscles of the legs of the common frog are so power-

ful, that it can traverse, at a single bound, a space fifty times the length of its body, and jump twenty times higher than its own height.' To perform a similar feat, a man five feet six inches high would have to clear ninety-one yards in length, and to jump thirty-six yards high.

The tadpole feeds on vegetation, the frog upon insects and molluscs, in obtaining which it uses its tongue with great dexterity. The skin of the frog being porous, supplies much of the air the animal requires, and in a great measure performs the work of the lungs. This also enables it to remain in the water, or buried in the mud, for some time without injury or inconvenience.

As the origin, early life, and process of development of the *toad* are similar to those of the frog, we need not again describe them. It, however, differs from the frog in some points of structure, as well as of habits. Although the toad's body, being covered with warts or tubercles of a dull colour, is considered to be repulsive in appearance, it has nevertheless a pair of very beautiful eyes; hence, no doubt, the saying:



Toad.

'The jewel in the toad's head.'

We fear its alleged ugliness—which is not a capital offence—has often subjected it to much cruelty from ignorant and superstitious people, which is not only mean and cowardly, but very wicked.

Some persons believe the toad spits poison. This error, no doubt, originated in the marvellously rapid manner in which it darts out its long tongue when securing its food, and which gives it the appearance of spitting.

Under the skin of the head and shoulders of the toad is an acrid humour, which has a painful effect upon a dog, when he lays hold of it with his mouth. As the toad is awkward in gait, and 'slow of foot,' it cannot readily escape from danger and ill-treatment; this humour may therefore be supplied to it as a means of self-defence.

Owing to the power the toad has of absorbing, through its skin, a great deal of moisture, it can exist a long time without food. Incredible as it may appear, it has been stated, on good authority, that toads have been known to live a great number of years embedded in stone.

This animal is very quiet during the day, but comes out of its hiding-place at evening time. It is in all respects a nocturnal animal, or one that seeks its food by night. It feeds upon insects, slugs, worms, earwigs, and woodlice, which are often destructive of strawberries, and other garden produce. The toad is therefore of great service to the gardener and the florist. We have been informed that living toads have been sold in Paris, at the rate of three and four for a franc-piece, to the market-gardeners for the purposes just mentioned.

Dull and stupid as the toad is considered to be, it can appreciate kindness. Some time since, a gentleman, living in Finsbury, had a tame toad, which he allowed to go about his house as it pleased. He was a very intelligent fellow, and would answer to his name whenever called.

The toad is, in one thing, more economical than any other animal of which we have any knowledge. He casts his skin, or old coat, at intervals, by a very novel process, and disposes of it in a way both wonderful and amusing. He calls in no 'old clo'' man, but manages the business entirely himself. He seems to know instinctively when his new coat, growing under the old one, is completed and ready for show, and when it is time to get rid of the outer skin, he has been seen to press his sides with his legs, and by so doing to split the old skin right down his back; then to work it from his sides into folds under his body; to strip the pants from the hind-legs, and the sleeves from the fore-legs; then to bring the old coat forwards, to open his mouth, and to swallow the whole. A gardener of Gravesend assured us that he had seen toads do just what we have described. We hope that in all these cases

> 'A good digestion waits on appetite,
> And health on both.'

Were this animal even more repulsive in appearance than it is, or less useful in nature than we have shown it to be, those who try to justify any act of cruelty towards it by saying, 'It's only a toad!' are guilty of a great offence, and of an

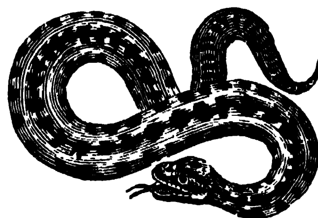
insult to the Creator, who has given life and form to this animal as well as to the richest and the greatest of all human beings.

Continuing our hunting expedition in the same ditches and ponds, we shall find great numbers of the voracious *water newt, eft*, or *aquatic salamander*, the common enemy of the tadpole. This creature deposits its eggs in the hollow of an upturned leaf, and is brought to a perfect state by a series of changes. If it loses a limb a new one will be gradually formed, and it has been known to reproduce a new eye in about a year. It has also the faculty of recovering after being frozen up for a year.

The microscope has revealed to us a hundred distinct and perfect forms of life in one drop of stagnant water.

THE ADDER.

As the adder, or viper, belongs to the same class of animals as the frog and the toad, namely, *reptilia*, a brief description of it will not be out of place in this chapter. 'The order to which the adder belongs is *ophidia*, taken from the Greek word *ophis*, meaning a serpent or snake.'



The Adder, or Viper.

The adder is well known in England, and, less or more, in nearly every part of the world. It usually inhabits dry, stony places, and heathy and bushy hills. It may be known from the common snake by a chain of dark spots running along the spine. It possesses a small amount of poisonous fluid of a yellow colour. The injection of this poison into an animal body is sometimes attended with dangerous results. Its poison fangs are as sharp-pointed as needles, and covered with a muscular envelope, through which the points just peer, and they lie on the side of the upper jaw, between the teeth of the palate and the skin of the head, so as to allow any food to pass over them without being pierced by their points. Bell says, 'There are two or three, or more, of these long, curved, and tubular teeth' (sometimes called fangs), 'on

each side of the upper jaw; the first of which is larger than the others . . . and moved by a muscular apparatus by which the animal has the power of erecting it.' It usually strikes into the flesh with very great quickness, leaving in the punctured part a small portion of poison, which causes great irritation and pain. In the head of the adder there is a glandular structure where this fluid is secreted. This is conveyed by ducts to the teeth or fangs before described. 'When the animal inflicts the wound the pressure on the tooth forces a small drop of the poison through the tube,' which is left in the part the animal has bitten.

It is said that the ancient Britons used to dip the points of their spears and arrows into the poison of the viper, so that they might have a more deadly effect upon their victims.

The eggs of the viper are hatched in the body, and it produces from twelve to twenty young at a birth. These, when threatened by danger, are protected in a very remarkable manner by the mother, who, according to some naturalists, is provided with a space between her throat and stomach, into which, when the animal's mouth is opened, the young ones may go for safety, which the mother ensures by getting out of the way into some hidden crevice or some thick under brushwood, where it cannot be reached. In favour of these assertions old viper-catchers have stated that they have seen the young ones come out of the mother's mouth.

It has been asserted that if a snake comes in contact with the leaves of the white ash-tree it will fall down apparently dead, and that the Indians twist garlands of white ash-leaves round their ankles as a protection against rattlesnakes. A gentleman, seeing a snake suddenly relax its hold just as it was about to attack a bird's nest, climbed up and found that the mother had surrounded her young with the leaves of the white ash, by which, no doubt, their lives were preserved.

Although the adder can neither swim, fly, nor run, only crawl, its organism is admirably adapted to its condition in nature. There is something geometrically neat and nice in the motion of snakes, which is owing to the annular scales under the body from head to tail, and which just overlie one another. Every scale has a distinct muscle, one end of which is tacked to the middle of its scale, the other to the upper edge of the following scale. The animal has the power of

raising these scales and laying hold on the earth, and with these facilities of locomotion can often travel at a good speed.

A friend of the writer told him that some years since her father was passing through a wood near Portishead, where he saw a number of adders, nearly full-grown, and which he thought were the mother and her young, all coiled round each other. At first sight they appeared to be lifeless, but on being disturbed by his approach they uncoiled themselves with amazing rapidity, and were soon out of sight. Twisting themselves round one another is a common habit of vipers in the winter season, during which they usually hybernate.

Like the toad, the adder casts off its old skin periodically, and then is seen dressed up in a new coat, fitting well, and looking much brighter and fresher than the old one, at least for a time.

The following story is curious: Near Clifton stands a building called 'Cook's Folly,' which report says was built by Mr. Cook as a protection against vipers, by one of which it was foretold he would be stung to death. He lived in the upper room, in which he felt sure the dreaded reptiles could not possibly reach him. A faggot of firewood taken to his house contained a viper, which found its way to his room, stung him, and caused his death.





CHAPTER IV.

BUZZINGS FROM A BEEHIVE.

NSECTS are small-winged or creeping animals, and in zoology constitute the third class of *articulated animals*, each with a body composed of three distinct parts, the head, the thorax, and the abdomen; they have six legs, and usually two and four wings attached to the thorax, two antennæ placed in the head, and respire by means of minute punctures along the side of the abdomen.

Insects undergo changes, or what is termed metamorphoses; the first is that of the *larva*, produced from the egg; the second the *pupa*, or *chrysalis;* and the third the *imago*, or *perfect insect.* The *aptera*, or wingless insects, however, issue from the ovum with the form they always possess. In metamorphosis, the organisms and functions undergo a great change. The repulsive-looking grub, which at one stage of its existence fed upon the most obnoxious matter, becomes a beautiful insect with gauzy wings, and a body resplendent with all the colours of the rainbow, flitting about in the golden sunshine, and anon extracting the nectar of the sweetest flowers.

We may suppose the year to be a little older than when, in the last chapter, we peered into our ponds and ditches. It is balmy springtime. Flora has come with her attendants and stretches her wand across the reviving earth. Thousands of flowers, those bright gems of our gardens and fields, spring up, and seem to vie in light and beauty with the stars which from the blue sky above shed their mild radiance on our now smiling world. Sweet-winged musicians, the nightingale and

other birds, sing their songs of love and wooing, and fill the air with melodious notes, and

> **'Hark! the *bee* winds her small but mellow horn,**
> **Blithe to salute the sunny smile of morn.'**

While the bee, this active, beautiful, and ingenious little 'busybody,' is buzzing and working among the flowers, we will briefly describe its structure, habits, and utility, as well as its wonderful home.

Bees constitute a numerous family, and belong to the order Hymenoptera. They are divided into groups, and are known by different names, given them on account of dissimilarities in their habits.

There are *solitary bees*, who live in pairs only, and make use of the nests of other bees.

The wild poppy forms the material of the nest of another species of bees belonging to the genus 'Anthocopa,' and which are on this account called *tapestry bees.*

Leaf-cutting bees make their nests in decayed trees, holes in gate-posts, or old rotten palings. Their nests are lined with circular pieces of leaves, and are so admirably and closely arranged that they are honey-tight, and serve all the purposes of these little builders.

Mason bees make their nests in the crevices of old walls, and even in empty shells. The nests are made of minute grains of sand, which they stick together by a glutinous secretion from their own bodies.

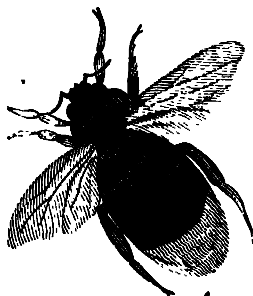
The *Carpenter bee*, one of the most wonderful of the bee family found in our latitudes, is of a most beautiful blue colour, and has the look of a large humble-bee. Impelled by maternal instinct, it will, at the proper season, set about preparing a suitable place for its future progeny. True to its distinctive name, 'Carpenter bee,' it attacks a beam, cutting in it a canal several inches long, and the third of an inch wide. This canal, or groove, she divides into as many chambers as she is about to lay eggs. The partition between each cell is composed of wood, which she rasps with her own teeth, and sticks together with her own saliva.

When these miniature chambers, or cells, are ready, this little female carpenter flies off to collect a store of pollen and honey, which will suffice for the wants of the larvæ, or the young bees to be born. On this food in each cell she lays

an egg, and then seals them up. When the little creatures are hatched they find plenty of food, which they ravenously devour. After the larva is changed into a chrysalis, it rests awhile in its chamber, but when it has thrown off its covering it gnaws its way through, and being supplied with wings, launches into the atmosphere, and commences to work just as its mother did before it.

The carpenter bee is certainly one of the most curious, ingenious, persevering, and industrious of the bee family. The Thames tunnel and those which have been cut through solid rocks to make way for railway trains do not exhibit more wonderful skill than does the work performed by it.

Another kind of bee is known as 'Bombus,' or humble bee, whose nest is usually underground, and does not often contain more than fifty or sixty bees.


Humble Bee.

The most numerous and profitable of our bees in England are known as

HIVE BEES.

These live together in thousands, and consist of males, females, and workers. Nearly twenty thousand *worker-bees* have been known to live in one hive. They are truly the working population of bee cities, as they collect honey and pollen for support, and propolis to build the combs, and they act as nurses to the young, which they treat with great care and tenderness.


Worker Bee.

Although worker-bees are non-breeders, they possess a wonderful and peculiar structure, which is well adapted for the work they do. They have not only a pair of large eyes, but three smaller ones placed in the crown of the head, and set in a triangular form. They have each a proboscis, from the base of which proceed feelers, enabling them to find out the nature of their food. The upper jaw has two mandibles, both furnished with teeth. They have each four wings and six legs.

In their hind-legs are pockets in which they deposit what they collect; it may be the pollen of flowers or propolis. They are also furnished with a globular bag, not larger than a dew-drop, called the honey-bag; when it is filled, they return to the hive to deposit their loads.

For much that human beings may know, they are often indebted to those by whom they have been instructed, or they must gain knowledge by experience. Insects are not dependent on either of the sources referred to, because instinctive actions are performed without the aid of either. The bee presents a strong proof of this. We may suppose a young bee has just emerged from the chrysalis, and that it has reached, for the first time in its brief existence, the opening or doorway of the hive. It looks about as if trying to understand what the outer world consists of; shakes, and stretches its little wings; then flies away to some field of clover or bed of flowers, works with great energy, and when laden finds its way home, where it gives up the store it has gathered, and has accomplished all this as effectually as it could have been by the oldest bee in the hive. Worker-bees have a stomach of tubular form, and in it the process of *wax*-making goes on. Their feet are hooked, and their points are opposed to each other; with these they can suspend themselves at pleasure. Their stings are very severe.

The *male bees* are called *drones*, and may number in a hive from seven hundred to two thousand.

The egg-laying females are called *queens*, but only one is allowed in a hive. If several should be hatched at once, in the course of time the strongest stings the others to death and takes the command. The queen will lay from seventy to a hundred thousand eggs in one season in the cells prepared by the worker-bees, and in which they remain only about three days before they are hatched. It has been stated that when a queen-bee is about to deposit her eggs, she selects ten or twelve bees to attend upon her, and who are to act in the capacity of maids of honour to her bee majesty. Accompanied by these maids, she commences a tour of inspection through the hive, closely examining the cells and other parts


Queen Bee.

of her queendom. In her journey she stops now and then and deposits in places which may best please her fancy six or eight eggs. In one day she will lay a large number of them. The attendant bees do all in their power to strengthen their queen during this exhausting process of egg-laying. They refresh her body with moisture from their own tongues, and show their loyalty to the queen-bee by always keeping their heads directed towards her. All this continues for about eleven months.

When the eggs are hatched, a little worm or larva appears, which is fed for some days on honey; it then changes into a nymph, or pupa. After passing a certain period in this state, it comes forth a perfect winged insect.

Owing to some peculiar physical organization of the male bees or drones, they never survive sufficiently long to see their own offspring.

Schirach discovered that when bees are by accident deprived of their queen, they have the power of selecting two grubs of workers, and of converting them into queens, and that they accomplish this by greatly enlarging the cells of those selected larvæ by supplying them more copiously with food of a more pungent sort than is given to the common larvæ.

We shall now describe the habitation in which these three orders of bees live and work so sociably together. We do not mean, however, the exterior of a bees' house. Although of late differently shaped hives, considered to be great improvements on the old ones, have been adopted, it is to the materials and arrangements of the interior of the hive to which we shall more particularly refer.

The astonishment of a rude, untutored savage who for the first time looks upon the grand buildings of our own and continental cities, could hardly be greater than that experienced by those who peer for the first time into the interior of a bee-hive. There may be seen, not only proofs of the industry and building qualifications of its little winged residents, but also of their geometrical skill. Houses are therein arranged in order like those in our streets; the best and largest for the queen, the next best for the citizens, and then storehouses for food, and all built on the most convenient and correct principles.

Here we have a number of *honey-combs*, composed of cells, which, being six-sided, are easily made to fit into one another.

The combs are usually about half an inch apart, so that two bees may pass each other without inconvenience. As the cells are made of wax, which is difficult to manufacture, the bees have to be economical and give one coating of wax, a side each to two cells. If the cells were cylindrical much room would be lost. The first cells that are made are the nurseries for the young, whose nurses are the worker-bees.

Before leaving the hive or *bee city* we may notice that the deaths of individual bees often occur therein. The manner in which they dispose of the defunct bee is very wonderful, and shows very clearly that bees instinctively know and feel the necessity of attending to sanitary duties. When a bee dies in the hive, two or three of the survivors, who will no doubt be worker-bees, roll the carcase towards the opening of the hive, and then push it over on to the ground below. They have also been known to literally carry dead bees away on the wing to some distance from the hive, and there to leave them.

The commercial value of bees is worthy of notice. In one year the island of Cuba produced honey and wax to the value of £130,000. It is supposed that if bees were generally kept in Great Britain and Ireland, they might produce honey and wax worth about £1,725,000 with but very little outlay of time or labour. Leigh Hunt, referring to the wax and honey manufactured and collected by bees, says: 'What two extraordinary substances to be made by little winged creatures out of roses and lilies! What a signal and lovely energy in nature to impel these little creatures to fetch out the sweet and elegant properties of the coloured fragrancies of the gardens, and to serve them up to us for food and light; honey to eat and waxen tapers to eat it by!'

The *swarming of bees* is a curious and interesting subject. These swarms are usually led by one queen after she has laid the greatest part of her eggs. Sometimes by two. The consequence is the swarm divides into two bodies, one under each leader; but as one of these groups is generally less numerous than the other, the smaller at last joins the larger, and its queen often falls a victim to the jealousy of her rival. In swarming, bees hang on to one another; having first selected the branch of a tree, each bee suspends its legs to those of another, and they thus form a living chaplet. Swarming appears to be resorted to in order to diminish the superabundant popula-

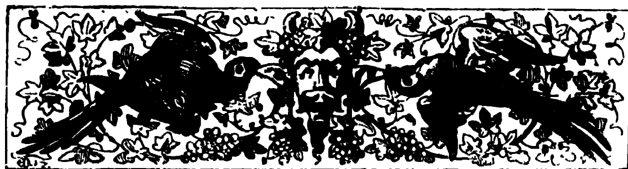
tion of the hive, the space in which is too limited for convenience and comfort. Bees therefore must emigrate to find more room elsewhere, or to form a new bee colony.

Small as this insect is, it is furnished with a weapon of defence to protect it against the thoughtless cruelty of boys and men who seek its destruction sometimes, for the sake of the drop of honey its small body contains, or it may be because it is known to inflict much pain by its sting. It is also often chased, and its life crushed out of it, through a sheer wanton feeling of cruelty. Although the bee has been known to sting human beings without provocation, it does so more frequently when molested by an intruding hand during its search for honey and pollen among the flowers.

Captain Brown relates the story of a gentleman who moved his watch-dog into the garden to protect its fruit from some juvenile depredators. Near the kennel was a bees'-skep, the population of which looked unfavourably upon their dog-neighbour. They therefore came out in a body, and stung the animal so severely that he died in a few hours.

Bees evince much intelligence when unexpected difficulties are placed in their way. Jesse says: 'A large slug made its way into a glass hive where the operations of the bees could be distinctly seen. Having killed the slug, and finding they were unable to get it out of the hive, they covered it over with the thick resinous substance called propolis, and thus prevented it from becoming a nuisance to the colony.'

A story, related in 'Anecdotes of the Animal Kingdom,' shows that human beings may, by certain modes of treating or managing bees, obtain such power over them as to influence them in their movements. 'In the year 1766, Mr. Wildman, of Plymouth, famous for his command over bees, paid a visit to Dr. Templeton in his bee-dress. He went in a chair with his head and face covered with bees, and a most venerable beard of them hanging from his chin. The ladies and gentlemen who were assembled to witness this novel spectacle were soon convinced that they need be under no apprehension of injury from these insects, and, therefore, went close to Mr. Wildman and conversed with him. After remaining some time, he ordered the bees to retire to their hive, and they instantly obeyed.'



CHAPTER V

SPINNERS AND WEAVERS.

UMAN spinners and weavers are often in indigent circumstances, and some persons consider them to be rather low in the social scale. Their mechanical genius is, however, very wonderful, and the work they do exhibits a great amount of ingenuity, and contributes very considerably to the comfort of their fellow-creatures, perhaps even more so than that of any other class of operatives. Those who might object to keep company with spinners and weavers are, nevertheless, glad to wear the material they spin and weave.

Although our little spinners and weavers may not command our admiration and attention by their external beauty and brilliant colours, their structure generally and peculiar mechanical apparatus constitute them thoroughly ingenious workers, and render them the most marvellous and interesting animals to be found in our gardens, fields, and houses; but against which great antipathy exists. We refer to different kinds of spiders.

Spiders constitute a large family belonging to the Araneidæ, the third order of the class Arachnida, the greater number living on the earth, a few only in the water. Spiders are hatched in a perfect, but small, form from eggs, in the same way as the chick of the common fowl. So, properly speaking, they are not insects, but animals. They breathe through lungs, have eight legs each, some have six eyes, and others eight eyes each, but no neck.

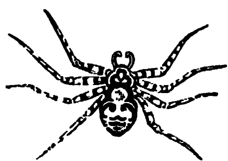
'Our word "spider" appears to be the "spinder" or "spinner," from the Anglo-Saxon *spinan*, to spin. Some old writers call the spider "spinner" and "spither." In an early

English Psalter (printed by the Surtees Society), Psalm lxxxix., it is called "spinnand web."'

In the spider family many varieties exist. As these adopt different methods of obtaining their food and making their homes, it is natural to suppose they are not all alike, either in structure, size, or habits. These we will briefly describe.

1. Hunting Spider.

On the upper part of the body of this spider are the outlines of the human face, showing the eyes, mouth, chin, etc. Its legs are long in proportion to its size. It is an active little fellow, and is constantly leaping and running round about its abode to look for prey. There is a sailor spider who hunts on the margins of pools, and who has been known in the fen ditches of the eastern counties to form a raft of weeds, bound together by silken cords spun from its own body. On this raft it will be wafted along by the breeze across the surface of the water. When it sees a drowning insect it at once secures it. These spiders do not, however, hunt for mere sport, but to obtain necessary food.



Hunting Spider.

2. Water Spider.

This is one of the most curious of its kind. It makes a floating chamber, in which it can live when in the water with ease and security. She spins around her body a gauze-like covering, over which she spreads a transparent fluid like varnish, which is waterproof. The spider can enlarge or contract this floating chamber at pleasure. 'She has the power of carrying a large bubble of air, which is kept in its place by the hind-legs. She descends to her chamber several times with bubbles of air, which she forces into her enchanted palace, and so makes it large enough.' Although living in the water, her body is never wet, because it is covered with hair and contains sufficient air to repel the water. We owe to this spider the invention of the diving-bell.

3. Leaping Spider.

The plan adopted by this spider to secure its prey is very much like that resorted to by the lion, the cat, and other

animals of the same family. It will conceal its body in a silken nest, made in the form of an oval sac, and will there remain very patiently for the approach of a fly or other insect, towards which it will move very cautiously and quietly, until it comes within leaping distance, when by a sudden spring it will pounce upon it, secure it, and then take it away to be devoured as its appetite may dictate or require.

4. Wandering Spider.

While many kinds of spiders live and remain in the same place, the wandering spider always seems to be unsettled, confining itself to no place in particular, very gipsy-like in its movements, in one locality one day, on the next in another. It weaves no web; only, when impelled by hunger, will it throw out a few threads to catch its prey. Its life seems to be very hazardous and uncertain.

5. House Spider.

This is so called because it usually weaves its web in the corners of rooms, in stables, cowsheds, outhouses, lumber-rooms, etc. It shows much ingenuity in weaving its web, to which it gives a large surface, to increase its chance of securing its prey. It lies concealed in a silken apartment, where it waits and watches intently for the game it wishes to secure.



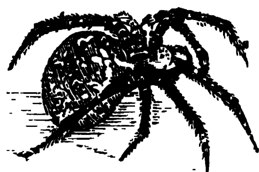
House Spider.

Fragile as are spiders' webs, and small as some people may think their value to be, save to the spiders who weave them, there is something so ingenious and wonderful about them, that the most perfect piece of mechanism produced by man is not to be compared, in point of delicacy, texture, and arrangement of the lines and threads, to those of a spider's web.

6. Geometric Spider.

This spider is so named because of the peculiar structure and shape of its web, which it often suspends from trees where insects abound. Having selected a suitable place for its web, it first throws out the stay, or outside lines, which may be

three in number to form a triangle, or four to make a square. These lines are thicker and stronger than the rest. It then runs a number of threads from the stay lines from top to bottom, and from side to side. These cross each other in the centre, giving the now skeleton web the appearance of the spokes of a carriage or cart wheel. The little weaver then goes to the outside, and, proceeds right round, leaving behind it a thread which it carefully fastens to each spoke or ray line. This constitutes the first concentric line; and so it goes round in this manner until it reaches the centre of the web. The weaver then inspects its work to find out any defective or weak part of it. Should any exist it is at once made secure. The spider then runs all over the web, on which it leaves, from its own body, an almost infinite number of very small drops of gluten, which give the web, when the sun's rays fall direct upon it, the appearance of a plate bestudded with pearls. Webs woven by this spider are sometimes sixteen inches in diameter, and have been made by them in forty minutes.



Geometric Spider.

This clever little weaver then attaches a thread to the centre at the back of the web, drops down to the ground, or to some place suitable, with the other end of the web attached to its body, and then waits in concealment for what it no doubt expects will follow. Before long, it may be, an incautious fly comes in contact with the web; its wings are made fast by those little globules of gluten before mentioned, so that it cannot escape. In its efforts to do so the whole web is shaken; then down the line, from the centre of the web to the spider's body, goes a telegraphic message which is at once understood. Then up to the web goes the weaver, who lays hold of the struggling fly, and bears it away to be dealt with according to spider instincts.

It has been known that when a strong wind has blown the web about, and it was likely to be damaged thereby, the spider has run a strong line from the web and fastened the other end to a small stone as a fixed point. Even when the tension of the thread has drawn the stone up, it has acted like ballast to keep it steady, and it has swung backwards and forwards like

the pendulum of a clock. Spiders often repair their webs many times over.

Adverting again to human weavers, it must be remembered that they have to be supplied with machinery, proper tools, and materials, to enable them to manufacture cloth, articles of wearing apparel of silk and cotton, or others for domestic purposes. Spiders, however, are not thus dependent. They find their own tools and material too, and though—unlike our weavers of cloth, who are taught their trade—they weave under the guidance of instinct only, yet they do their work with great precision, and in all respects marvellously well.

The thread spun by spiders is of silk, and finer in quality than that of the silkworm. More than a century and a half ago Languedoc made some silk stockings and mittens of spider's silk. It however requires twelve times more spiders than silkworms to produce the same weight of silk. The ferocious character of spiders has always been an obstacle to any important speculation in this particular.

The threads of the spider's web are produced from their own bodies as a thick gum, which issues from four or six little swellings on the abdomen. These form the spinning apparatus, and produce thread-like rope-spinning. Each spinner contains a number of tubes, from which come threads of wonderful fineness, and which are united into one thread. The tubes being of various sizes, the spider can make threads of any thickness, and, in order to ensure their strength, first dries the silk in numerous minute threads, and then spins them into one. The spider can close these spinners at pleasure.

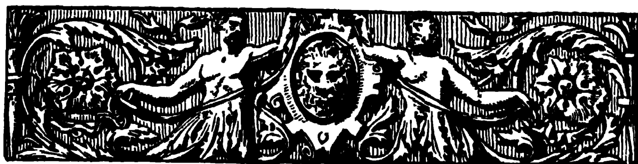
The claws of the spider's feet are of great use in weaving the thread. The feet of some spiders are furnished on the under surface with teeth like a comb; with these the little weaver separates the lines of the thread as it may require. There can be no doubt that the rotatory motion of the spider in its ascent aids, at least, in uniting more firmly the lines into one thread.

We shall now refer to a few more interesting facts, of a different character, respecting spiders. 'A gentleman once boasted to a friend that he could introduce to him an engineer of more wonderful skill than Robert Stephenson. In fulfilment of the boast, he brought out a glass tumbler con-

taining a little scarlet-coloured spider, whose beauty, with its bright yellow nest on a sprig of laurestinus, had induced a young lady to pluck the sprig from the bush where it was growing. When brought into the house, it was placed on the mantelshelf, and secured by placing a glass over it. In a very short time this wonderful little engineer contrived to accomplish the herculean task of raising the sprig of laurestinus—a weight several hundred times greater than itself—to the upper part of the glass, and attaching it there so firmly that it remained suspended for many years where it was hung by the spider.'

If spiders lose a limb they have the power of producing a new one. Spiders have been known to live without food for months together. Repulsive as they appear to some people, spiders have been tamed, and made the companions of man. Kirby speaks of a Frenchman who tamed eight hundred of them. The learned librarian of the Duke of Tuscany showed more love for spiders than for any other living creatures. Pellison, a great genius, during his confinement in the Bastile, found comfort in the society of a spider, which he not only tamed, but taught to come to its food at the sound of a musical instrument. At concerts, spiders have been known to descend from the ceiling, and to return when the music was over.

Spiders are very affectionate. The spider, which carries a white bag for its eggs, will cling to it like a miser to his gold. If she loses it she seems to despair, but evinces joy when she regains it. She carries her young wherever she goes, and feeds them until they can provide for themselves. They show this affection to old spiders, for when they are too feeble to build or repair their own houses the younger ones do it for them, and also catch their prey to feed them. This would seem to indicate that the young spiders remember their own once helpless condition, and that it is their duty to act upon the principle that 'one good turn deserves another.' This is a little lesson which many young people might learn to advantage.

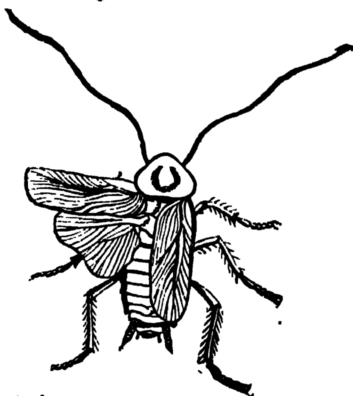


CHAPTER VI.

BLACK LODGERS AND MINIATURE SCAVENGERS.



HEN wearied human beings have ceased their labours for the day and have gone to rest, when our lights are extinguished, and the sound of busy hands and feet is not heard, then it is that varied tribes of animals begin to be active in searching for food, or in performing other duties not less necessary to the comfort of their existence. Of these members of the animal kingdom, special notice may be taken of the cockroach, which, from its habits, may be justly named a black, nocturnal scavenger.



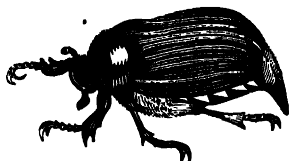
Cockroach, showing wings open and close.

It is called *Blatta Orientalis*, included in *Blattidæ*, a family of insects belonging to the order Orthoptera. Cockroaches infest the lower rooms of houses, especially kitchens, in our large towns, and although of rather disagreeable odour, and destructive of all sorts of clothing, books, paper, and leathern articles, are useful in consuming the refuse. They have been known to be so numerous in one house as to devour in one night the peelings of a good-sized cucumber. They are swift runners and have quick hearing, for at the least noise they will disappear in their hiding-places. They may be known by

their head, which is large, completely concealing the prothorax, and by their antennæ, which have from fifty to one hundred and fifty joints. Their eggs are in a case shaped like a bean, which they carry with them for some time, and then put them into a suitable place to hatch.

As beetles are considered to be near relatives of our common cockroach, a brief reference may be made to them. Duncan supposes there are in all the countries of the globe 120,000 different orders of beetles, of which 3,600 are common to Britain, and many live entirely under the ground.

The dor-beetle, or cockchafer, is very common in England, and in its larva state is very destructive of the roots of corn and grass. When it reaches a perfect state, it flies among trees, the leaves of which it ravenously devours.


Dor Beetle.

The dung-beetle makes pellets of earth, in which it deposits its eggs; it then pushes them back with its hind-legs into holes some feet deep, and perseveres, in doing this, through every obstacle. It feigns death when attacked by rooks.

The sexton, or burying beetle, is a great curiosity in its way. It is so named from its habit of burying the dead bodies of small animals, such as moles, mice, frogs, as well as portions of fish or of meat. On these the female deposits her eggs, with a seeming knowledge that when the grubs are hatched they will find in the decomposing bodies of the animals, etc., the food just suited to their embryo condition, and the voracious appetites they always possess. A foreign naturalist informs us that in fifty days four beetles had buried four frogs, three small birds, two fishes, one mole, two grass-hoppers, the entrails of a fish, two morsels of the lungs of an ox, and all intended for the purpose described.

Gleditsch says a friend of his, being desirous of drying a dead toad, fixed it on the top of a piece of wood, which he stuck in the ground. But he was outwitted by these little sextons, who, not being able to reach the toad, undermined the base of the stick until it fell, and then they buried both the stick and the toad.

Antipathy against beetles and cockroaches is so general

that they meet with but little mercy from those who can raise a hand or lift a foot to crush the life out of them; an act which is often accompanied by the exclamation, 'They are only cockroaches, or only beetles, who not only do no good, but a great amount of harm.' This, however, is a wrong notion. These creatures are not, as we have shown, unmitigated pests. They have their appointed place and work in nature.

If the wonders of their structure, the beauty of the varied markings of their little bodies, the means they possess for obtaining their food and protecting themselves, and above all, if the intelligence they show in their movements were better understood, this antipathy would be considerably lessened, and any effort made to keep them in check would be prompted by a far more commendable motive than destroying them because 'they are only beetles,' or 'only cockroaches.' Life is a sacred thing, even in an insect, because, like our own, it is given by the Author of all life, and therefore should not be wantonly taken.

If cockroaches shun the light and regard human beings as intruders, we have in the

COMMON HOUSE FLY

an insect of widely different habits and notions in these particulars. The brighter the light the more it seems to revel in it. It can make itself free and familiar with any number of persons, regardless of their sex, rank, or position. It is at home anywhere and everywhere, on the best of terms with itself and everybody else.

Says the fly, in *Æsop's Fables*, 'It is well known what my pretensions are, and how justly they are grounded: there is never a sacrifice that is offered but I always taste of the entrails, even before the gods themselves. I have one of the uppermost seats at church, and frequent the altar as often as anybody. I have a free admission at court, and can never want the king's ear, for I sometimes sit upon his shoulder. . . . And then I eat and drink the best of everything, without having any occasion to work for my living. What is there to be compared to a life like this?'

The fly family is a large one, and consists of many varieties. Naturalists have already discovered about eight hundred species, existing in almost every part of the world; wherever

plants and flowers grow, and animals are found, there they are seeking food and depositing their eggs. In England, there are nearly one hundred kinds of flies. Many of these are familiar and regular domestics, and prefer human habitations to other places; others take a wider range, making acquaintance with various animals, or passing their brief lives in the green lanes, by the sides of pools, or in the open fields.


Blue-bottle Fly.

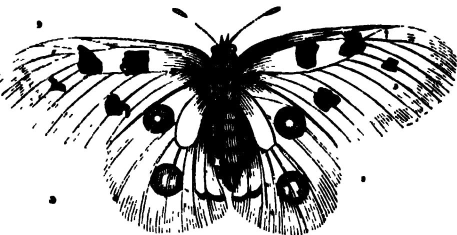
Amongst the English relations of the house-fly are the dragon-fly, the gnat, the gad-fly, the horse-fly, the blue-bottle-fly, the forest-fly, the ox-fly, the May-fly, the ichneumon-fly, and others. The house-fly may claim, at least, a distant relationship with butterflies, all of whom are more or less beautiful, light, airy, and graceful creatures. These are the cabbage or white butterfly, the tortoiseshell butterfly, which lays its eggs on the leaves of nettles, the swallow-tailed butterfly, the East India and Chinese butterfly, and the peacock butterfly, on whose wings are many thousands of scales. Nothing can exceed the brilliant tints and harmonious colouring of the wings of some butterflies. Some look like gold, silver, azure, and mother of pearl—all so dazzling and rich that language fails to describe them as they deserve.


Cabbage Butterfly.

Although house-flies may be able to boast of a long line of predecessors who lived in very remote ages, one can hardly admire their birthplaces, which in many cases are offensive to approach, and unpleasant to look upon. But in this they cannot justly be blamed, because in all they do flies are impelled by instinct only. It is not to them a mere matter of choice or fancy where they shall deposit their eggs, but one of necessity. The development of the larvæ which come from their eggs, and the metamorphoses they must undergo

before they reach the stage of perfect insects, alike require the warmth and provision they find in the dunghill of the stable, in refuse by the roadside, or in the grazing-meadow, which contain animal and vegetable matter on which they are to subsist.

What a wide and amusing contrast often exists between the circumstances of the birth of a common house-fly, hatched in a dunghill, and many of the movements of its subsequent life! Now, it may be, joining a brilliant party at dinner and dessert, then deliberately walking over the bald pate of some aged philosopher; now buzzing in the ear of some parliamentary orator, or walking down the nose of the artist at his easel; then stinging the hand of the student of law, or alighting on the jewelled crown of some great monarch; and all these liberties have been taken by the fly without invitation, and, we may say, without a word or look of welcome from those it has visited.



Peacock Butterfly.

As autumn and winter come on, these insects gradually diminish in numbers. Many of them die of a peculiar disease, which usually attacks them when the air becomes chilly. They repair for shelter and warmth to our rooms, which does not, however, save their lives, as their dead bodies may often be seen adhering to our window-panes, walls, and even to our furniture; though dead, they seem to be in the attitude of taking their flight, and it is only by touching them that you can be convinced to the contrary. Great numbers are destroyed by other insects, and by birds, who in many instances live almost entirely on flies.

Some of them hybernate in the warm corners and nooks of our houses, others hide themselves in our curtains and drapery; and before the depth of winter arrives, scarcely a vestige of this once ever-active and busy fly family can be seen. In these secluded places they remain until spring returns, with its

cheering sun and genial warmth. Then, as if new life had been infused into them, they awake from their winter sleep, unfold their wings, and commence to perform the duties of their fly life with a great amount of energy and determination.

Unlike the bee, the wasp, the spider, and many other tribes of insect-workers, flies have no trouble in making their homes, or nests, or gathering a store of food for their future progeny. They buzz from place to place, apply their proboscis where they can to suck the juices of meat and fruits. They work for their own support only, and are contented with a change of lodgings every night. They may be the guests of a peasant, or be under the roof of a splendid palace. It is all the same to them.

One of the first duties of the female fly is to deposit her eggs in some decaying substance, which her instinct will denote to be suitable for the support of the larvæ. Having selected the place, she 'lays her eggs by the side of, and upon one another, with the same precision as the cleverest hands would arrange larger objects.'

Killer says that the fly lays 70, 80, or 90 eggs at what we may call 'a sitting.' This it will do four times in the season. Supposing the fly to lay 80 eggs at once, four times over during the spring and summer, then it will produce 320 flies. The same author, making this number the basis of his calculations, arrives at this marvellous conclusion, that a single female fly becomes, in one season, the progenitrix of 2,080,320 flies.

'The eggs are hatched in a few days after they are deposited. . . The body of the larva is divided into thirteen rings, the anterior one, or head, being furnished with a pair of hooked jaws and rudimentary eyes. . . Whilst in this state, it is constantly devouring the substance in which it was hatched, and increasing rapidly in size; and in a few days assumes the pupa form. This change is effected by the hardening of the outer skin, which becomes brown and tough, inclosing the larva in a little barrel-shaped case; or, to speak more correctly, causing it to resemble a grain of rice in the husk.

'Whilst the insect is in this its second or pupa condition, that remarkable metamorphosis is taking place in its internal as well as external structure, which raises it from the type of a worm to that of a highly organized insect.

'When the fly makes its escape, it presents anything but a graceful appearance; for whilst it was in the pupa-case, its members were folded against the body more with a view to economy of space than to display their elegance; and the wings are necessarily crumpled and insignificant in appearance . . . . These members are supplied internally with a great number of air-tubes; and one of the first operations of the insect is to inflate these by a trembling motion, and by the expansion and contraction of the abdomen; in thus dilating the air-tubes the insect gives to the wings their necessary expansion and support.'

The way in which the fly liberates itself from its husky prison, and ushers into the region of light and liberty, is curious and interesting. 'After it has, by a series of muscular efforts, detached itself from the pupal covering, it strikes its head forcibly against one end of the case time after time, until it bursts open, as it were, upon a hinge, like the lid of a cylindrical snuff-box.'

Naturalists are not agreed as to whether flies increase in size or not, after they have left the cases in which the transformations they have undergone were completed. Be this as it may, we have often noticed that not only the house-fly, but many other flies belonging to the same kind, have come to us in early spring fully grown, and have not, apparently, at all increased in size after many months' residence amongst us.

This much we can say, that in their winged stage they possess good appetites, which they indulge in all the delicacies within their reach.

There are but few living creatures that present greater marvels of structure than does the house-fly. We all know that such is the organism of the human eye, that when it is fixed upon one object it sees only one at the same time. The eyes of the fly, formed something like a prismatic mirror, contain an assemblage of multitudes, often of many thousands, of small but perfect eyes, so that a fly looking upon a bird or another fly, would see the same object multiplied thousands of times over. Although the fly cannot look round a corner, it can see almost every way at once and take in all surrounding objects. Hence the difficulty of catching it with the hand.

If human beings have hands by which they can perform

their labour, and supply themselves with food; if birds of prey are furnished with bills for tearing flesh, and with sharp claws for holding it; if farm-yard fowls and birds belonging to the same order and family can scratch and scrape for the worms and grain they need for sustenance; if the cow and sheep and other ruminants have mouths so organized that they can, as in a vice, seize a wisp of grass, or herbage, and so effectually and with ease sever it from the stalks and roots, and in time fill their capacious stomachs with food—so the fly is well provided with the means of finding out what is both suitable, palatable, and necessary for support in the way of both solid food and little delicacies.

The fly is furnished with a trunk, or proboscis—a most wonderful piece of organism—which, seen through a microscope, almost dazzles by its beauty, and astonishes those who look at it by its suitability for the purpose for which it is intended. This trunk answers to the fly both as a taster and instrument to enable it to extract the juices of meat and fruit to which it may take a fancy.

In making use of this frontal probing apparatus, the fly is by no means particular or considerate either as to place, person, time, or circumstances. How often it happens, in warm summer weather, when we are wearied by labour, and have taken our usual meal, we fall back in an easy-chair, close our eyes, shut out the world to forget both business and fatigue, in hope of deriving some benefit from a few minutes of soothing slumber—and, it may be, have just been carried on the wings of Morpheus across the border of dream-land, where, in its Elysian fields, a thousand beauties have broken upon our fancied vision—that a stinging sensation, or noise like distant thunder, has aroused our senses, and we have by a kind of involuntary motion of the hand tried to drive away our disturbers, accompanied probably with the ill-tempered exclamation: 'Be off with you, do!' or, 'What a pest you are!' We hardly need say that this annoyance has been caused by a fly buzzing in our ear-hole, and unceremoniously pushing its awl-like proboscis into the extremity of our nose, as much as to say, 'You have dined, and so will I, but it shall be on the end of your nasal organ.'

Although flies have been denounced to be impertinent

intruders, over-familiar, and a great plague not only to human beings but to animals; and although they may increase so rapidly in numbers as to render it necessary to keep them in check, it is doubtful whether they should be destroyed wholesale, as they often are, by poisons, and especially by what are vulgarly called 'Catch 'em alive O' papers. Even flies have their uses, which will be referred to in another chapter.

The wings of the fly, which are two in number, are inconceivably thin, gauzy, and beautifully formed, and which this busy, industrious animal may often be seen brushing with its long, slender, and feathery legs, so admirably adapted for cleaning and keeping the wings transparent. In this work the fly outvies the best of polishers.

Referring to the rapid movements of the fly, Nicholson states that 'the vibrations of the wings of a common fly are as many as 600 in a second, since it passes through space at the rate of six feet in this time.' But this observer adds that 'for rapid flight we must multiply this number by six, which means that in a second, or the time we require to execute a single movement of one of our members, the fly with its wings can perform 3,600,' going thirty-six feet in a second.*

If the above calculation be correct, is there not something very marvellous in the structure and power of the wings of this little creature? If it were possible for a greyhound to travel as swiftly, in proportion to its size, as the house-fly can do, it would seem to run over the ground with lightning rapidity, and to throw all railway locomotive speed quite into the shade.

If we value a thing, and use it tenderly because of its beauty and wonderful mechanism, then the house-fly should be exempt from the tortures often inflicted upon it by ignorant children, who thoughtlessly pull off a leg, or deprive it of a wing, merely for sport—an act in itself not only reprehensible, ut mean, cowardly, and wicked.

The feet of the fly, in their structure, are scarcely less won-

* According to the result of recent experiments, Nicholson appears to have been in error, as the greatest number of vibrations a fly has been known to give with its wings in a second is 330. But may it not be that as animals of the same kind differ in the speed at which they travel simply because some of them are stronger than others, so flies may also differ in strength, the strongest being able to give more vibrations in the same time than weaker ones can do?

derful than are its wings. Anatomists have found it difficult to explain the precise power, or by what peculiar organism the fly is able to walk on the surface of any solid body, however smooth and slippery it may be, and in any position of its body, perpendicularly, or with its back downwards, without either falling or suffering the least inconvenience whatever, although it does so in defiance of the law of gravitation. Human acrobats are clever, but in this particular they cannot offer the fly the least competition. The attempt to do so, unaided by mechanical appliances, would not only be futile, but might end in the most disastrous effects. So, in this feat, we must award to the fly the palm of being decidedly the more clever of the two.

Microscopic examinations have discovered hollows in the feet of the fly, which, when pressed on anything, force the air out, and so, on the principle of a boy's sucker, help the fly to cling to the object without danger of falling. It is also stated that flies have a number of minute hairs on their feet, closely set and directed downwards, and so are able, by these hairs, to lay hold on any little roughnesses that may be on the surface, and thus mechanically retain their upside-down position.

Such is the common house-fly in its organism; our summer visitant, our uninvited guest, who does as he pleases, takes what he fancies from the plainest or richest of viands, walks over our mirrors, leaves traces of his peregrinations on our looking-glasses and pictures, peers into the milk-jug, drops down into the sugar-basin, sucks at a peach, or pierces an apple. A teasing little fellow, but after all of great use in the economy of nature. He is so amusing, quick, and interesting, that he is a client worth pleading for, and his life worth sparing; for all the wealth and science in the world could never restore his lost life, or repair a broken leg or wing.

It is said of the large-hearted John Wesley, that on one occasion, when a fly pitched on the back of his hand, instead of crushing the life out of it (which is too often done by some people), he gently brushed it off, saying as he did so: 'Go, sir; there is room enough for both of us.'

Although we shall have *more* to say about the fly hereafter, we will close this chapter by letting the fly speak for itself in

the following verses, written by the author many years ago, and which may be interesting to our readers, especially to the younger ones.

THE SONG OF THE FLY.

In whirling and twirling and buzzing about,
Sometimes I'm indoors, sometimes I'm out;
I sport in the sunshine, I rest when I please
On the sweetest of flowers, or the noblest of trees.

I'm the daintiest hussy that e'er had a wing;
And some people say I'm a tormenting thing:
I'm fond of good mutton, of beef, and of veal;
And when I think proper a bit I can steal.

I have no objection to pork, or to lamb;
I'm partial to sugar, I doat upon jam;
And treacle I like, but it doesn't like me,
Because when we meet we can never agree.

It sticks to one's legs like a leech I declare,
And stifles one's body for want of fresh air:
So you won't be surprised if I say, I suppose,
I'd rather at any time tickle your nose.

Your acrobats, bless you, are nothing at all
Compared unto me—they can't walk up a wall;
But I can do so with the greatest of ease,
Or with my back downwards, whenever I please.

In palaces, mansions, in cottages, halls,
In Westminster Abbey, or the dome of St. Paul's;
In the hovel of poverty, wretchedness, care,
I'm always at home, when I please to go there.

At brilliant parties I'm sure to be seen:
I dine with the King, or I sup with the Queen;
I flirt with the old and the young in the dance:
I watch each fair maiden's coquettish glance.

The world is my parish, no taxes I pay;
I heed not a word poor collectors may say.
I'm fed, and I'm housed at the public expense;
And no Act of Parliament can e'er drive me thence.

I'm very ambitious and pious, I own;
I buzz in the pulpit, I wink from the throne;
And often the woolsack I have for my bed,
Or I rest on the hair of the Chancellor's head.

In whirling and twirling and buzzing about,
Sometimes I'm indoors, sometimes I'm out;
I sport in the sunshine, so happy am I,
That I wouldn't be anything else but a fly.

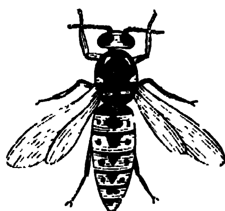


CHAPTER VII.

INSECTS IN LIVERY, AND TINY BOAT BUILDERS.

N our wanderings through a cornfield, or down a shady lane in the autumnal part of the year, and while surveying the beautiful prospects of woods, hills, and dales, listening to the chorus of the larks, linnets, thrush, blackbird, chaffinch, and sparrows, we suddenly encounter a variety of insect life of every conceivable form. It may be a buzzing noise reaches our ears, and we see, in close proximity to our face, an insect on the wing covered with *a coat of striped gold*, but from which, notwithstanding this beautiful dress, we turn away with instinctive fear, because of the formidable weapon it always carries with it, and which it well knows how to use as a means of self-defence, or for the punishment of those who may interfere with its movements. This is the *wasp*, one of our insects in livery.

Wasps are hymenopterous insects, and are of different kinds. One is known as *solitary wasps*, consisting of males and females; but they have no neuters or workers. Another kind is known as '*Vespa Britannica*,' which is a tree wasp, and builds its nest of a thin substance like paper, but of a very fine and close texture, and suspends it from the branch of a tree. It has been said that the nest of this wasp first suggested to man the art of paper-making.


Wasp.

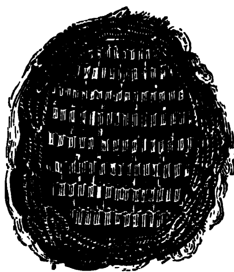
The kind of wasp to which we shall more particularly refer belongs to what are termed '*Sociales*,' the true or restricted family '*Vespidæ*,' whose structure is both curious and

interesting. A wasp of this kind has four wings, which, when the insect is at rest, are folded throughout their entire length. It has very sharp teeth, by which it can scrape even sound wood into little heaps, and then carry them between its chin and forelegs some distance to build the cells with.

The sting of the wasp is a tube with a bag of poison at the end of it within the body of the insect. It has two spears, one longer than the other, the longer acts as a gimlet to bore the hole; this is withdrawn, and the short one inserts the poison. The females and neuters only are provided with this stinging apparatus. Although the wasp is not an inch long, its sting is the terror of almost every kind of animal.

Large parties have been known to leave their picnic dinner, fruit, and wine, through the savage attack of wasps, and an army of men to fly from them. On going down a country lane, we once saw some men carting manure from a heap, when one of them stuck his fork into a wasp's nest; out flew the exasperated inhabitants, and sent the men and horses running in all directions, waggon and traces being shattered and broken in the fray.

There was a gentleman in Paris who owned two monkeys that had an instinctive horror of wasps. He had a large picture on which two of these insects were painted true to life; whenever these monkeys caught sight of them, they made all the fuss in the world, and betrayed the greatest uneasiness until they were taken out of the room. As the wasp has not sufficient strength of body to protect itself against the attacks of larger animals, it is no doubt furnished with this stinging weapon to be able to do so.



Wasp's Nest.

The *nests* or *vespiaries* of the social wasp are curious but interesting structures, and are often found as deep as eighteen inches below the surface of the bank in which they are built. In these nests cells are arranged in combs much like those formed by bees, and in them the wasps deposit their eggs. A large nest will often contain 100 females, who may be called egg-laying queens, and who in the course of one summer will produce 30,000

young ones, or 300 each. These females glue their eggs to the sides of their cells by a gluten produced by their own bodies.

'The grubs are fed by the mothers until they become pupæ,' or when they reach the second stage of their existence. 'Within twelve hours after being excluded in their perfect state, they set to work in constructing fresh cells, and helping to feed the grubs of other workers.'

Although, in the matter of queens, bees and wasps differ considerably as regards numbers, the former having *one* queen only, who is the egg-layer, the latter having many queens, who all perform the same duties, the 'male wasps, like those of the bees, perform no menial work; this is left to the neuters, which are always the most numerous and busiest of the wasp family. These are the architects, soldiers, and commissaries of the community. They build the nests, gather provisions, regulate the nurseries, and revenge insults.' The duties referred to require not only time and labour, but much industry, perseverance, order in division and arrangement, and much intelligence.

In the interior of a wasp's nest there are a council-chamber, presiding geniuses, and members whose instinctive knowledge of the wants of those within it prompts them to provide for those wants, to take different departments of labour and to employ diversified means to make this necessary provision.

The grubs produced from the eggs laid by the queens are very voracious and require a large amount of food. To procure this, some of the females and workers fly off to collect what they can from flowers, ripe peaches, pears, or any other kind of fruit they may fancy. They will attack a sugar hogshead, and have been known to pilfer honey from bee-hives The food thus collected is taken to the nest and impartially divided among the youngest of the larvæ.

The duty of finding food for the more advanced or larger grubs of the nest devolves upon another foraging party of wasps, who are very bold and daring in their attempts to obtain it; as they will pitch upon flies and bees, invade a butcher's shop, and with what morsels of meat they can carry, will then fly back to the cells to feed the larvæ, who seem to be expecting and looking out for the return of their providers.

All through the summer fresh broods of grubs are constantly

coming one after the other, so that by the time of autumn the wasp colony may number from 20,000 to 50,000 young wasps and grubs, which have not arrived at a state of perfection. As wasps lay up no store of food, or but a very small quantity, during fine weather, the larvæ which come in the autumn must either starve to death or be slaughtered by the old wasps to save them from the miseries of a lingering existence. This act is really one of instinctive mercy, and shows much forethought. The old wasps seem to know that with the departure of the sun's genial warmth, flowers with their nectar, and fruits with their luscious juices, will also disappear, and that all other insect supplies will be cut off by the cold winds and frosts of approaching winter. With such a prospect, what better course could the old wasps take than by ending the lives of the helpless grubs suddenly, but mercifully? As wasps are very prolific, and might become very mischievous both to man and produce, this wholesale destruction of insect life shows the wisdom of God and His consideration for His creature man.

The practice of blowing up wasps' nests with gunpowder is a cruel one, because while many of the wasps may be killed instantly, others are mutilated only, and so are rendered helpless and doomed to linger on in suffering until they die of the injuries inflicted upon them. 'Wasps have sentinels placed at the entrance of their nests to give an alarm in case of danger. If their guards are seized and destroyed, the rest do not attack.'

If, while some of the wasps are at home attending to domestic affairs, and others are outside looking for food, any one were to block up the entrance to the nest with a shovelful of soil, he might stand there without fear so far as the outside wasps were concerned, because, disappointed as they might be in finding the entrance to their nest closed, they would not attempt to defend either it or themselves; but should the imprisoned wasps be able to work their way out, they would very soon give him some stinging proofs that they are not to be trifled with or to be insulted with impunity.

As the winter approaches, the queen wasp hybernates in some old tree or wall, or behind some window-curtain. During this sleep, her antennæ and wings are carefully folded so as to be defended by her body on all sides. How, without the sweets of flowers, the juice of fruits, or food of any kind,

life can remain in its little body through a long cold winter, is one of those marvels and mysteries of nature we may never be able fully to understand or to explain.

When the sunshine and warmth of spring come the wasp wakens up to a new life, leaves its winter quarters, and sets to work to construct cells in which to deposit her eggs. It is in this way, and at the proper season, that year after year these insects in livery are perpetuated.

Wasps are not totally depraved. Such is the love of these insects for their young, that if their nest is torn and scattered about, they will not abandon it; they cling to its remains and to their own progeny as long as they can.

If wasps do not exhibit the same amount of forethought as bees do in making provision during the months of summer for future wants, they work equally hard in making their nests, building cells, and obtaining food for present necessities. They cannot therefore be charged either with laziness or indifference to the duties of their life. However much some people may dislike these insects, it should not be forgotten that in all their actions they are impelled by instinct, with which they, as well as other animals, are endowed. On the uses of wasps in the economy of nature something will be said in a future chapter.



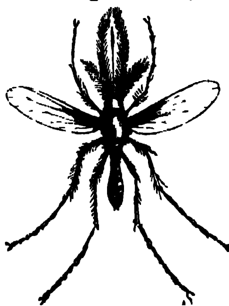
Dragon Fly.

The *hornet* and *dragon-fly* are also insects in livery. The former is of a dark-brown and yellow colour. Baird says, "The common wasp seems to be its favourite prey, though it eats almost any kind of flesh, as well as fruit and honey. Their nests are smaller than those of the common wasps, and are of a globular form, constructed with the mouths of the cells downwards. They are active creatures, fly rapidly, and have been observed, unlike most insects, to carry on the labours of building their nest by moonlight. The sting of the

hornet is very severe, and is often productive of serious consequences.'

The *dragon-fly*, common in this country, has a long slender body, and is known particularly by its beautiful livery of white, scarlet, blue, and green, and by the transparency of its wings, which are four in number. It deposits its eggs on the surface of stagnant water, and the larva, which are soon hatched, live about a year before they are fully grown. They live upon the larvæ of other insects, and, like all other grubs, are very voracious. In their larvæ state the creatures are protected by a kind of shell or mask. When the proper time arrives they leave the water, get on the bank, where they remain until, by the heat of the sun and by their own force, the case splits open, and the dragon-fly, shaking off its trammels, spreads its wings, and with the greatest velocity flits hither and thither in the warm sunshine. The dragon-fly is the terror not only of other insects, which it greedily devours, but of larger animals and of human beings, who have either to run out of danger, or to place themselves in a defensive attitude for protection against this threatening insect.

Resembling the dragon-fly in its earliest stage of life, and in its progressive development to a perfect insect, is the *gnat*, or *tiny boat-builder*, which we will now briefly describe.


Gnat.

Gnats constitute a family of dipterous insects, which have only two wings each. Their bodies are small, slender, and long. The proboscis of the female possesses some needle-like organs, which act upon the suction principle. Punctures made by them are often attended with much pain and swelling. Because of their teasing and tormenting qualifications, gnats have been termed 'English mosquitoes.' When the weather is warm they may be seen by thousands floating in the air, and often afford much amusement by their eccentric, sudden, and quick gyrations.

They are almost ubiquitous. They follow us in sunshine and shade, invade our bed and sitting rooms, enter our counting-houses and workshops, and they are with us in the field,

lane, garden, and city. 'In 1736 the inhabitants of a village near Salisbury saw what appeared to be volumes of smoke ascending from the cathedral of that city, and which they thought was on fire. It turned out, however, to be a cloud of gnats.'

There are but few things in nature more interesting or romantic than the means employed by these tiny insects to perpetuate their own kind. On a summer evening the female gnat may be seen to alight on a blade of grass or small leaf, floating on the surface of a sheet of water. She so places her body upon this blade or leaf that her two hind-legs, thrown back, project to the edge of her little green raft. She then crosses her legs in the shape of an X, and proceeds to deposit her eggs one by one in that part of the cross nearest her body. These she glues to each other by a secretion with which she is well provided. She goes on laying her eggs and fastening them together as described till the whole mass assumes the form, and becomes an actual boat skimming on the water, on which it rides buoyantly and securely, unless it should be injured or destroyed by accident.

This little *lifeboat* floats about for some time, when, by the direct rays of the sun and the genial state and warmth of the weather, the eggs are hatched; the grubs then sink to the bottom of the water, where they make themselves little cases or shells, into which they can go or creep out at pleasure until they arrive at a more perfect state, at which time they are a kind of red worm. After a while they ascend to the surface in the chrysalis state, their wings are formed, they become perfect insects, being furnished with all necessary appliances for enjoyment, take a look round on the new world, and then start off on their aërial voyages across the meadows, into the green lanes, or down by some river, or anywhere else their fancy may lead them. If their life is a bright and happy one, it is very brief in its duration.





CHAPTER VIII.

OUR BIRDS OF FREEDOM.





STROLL or drive into the country during the warm spring and summer time is a great treat, especially to those who are compelled always to reside in our large cities and crowded towns. Many things combine to render such a trip both agreeable and beneficial. The vitiated air of small rooms, work-shops, factories, counting-houses, and other places of business, is exchanged for the fresh, pure, invigorating, and life-giving breezes of the open country.

Instead of being almost deafened by incessant noise, so common in our streets, those who walk over hills and far away

may enjoy that quietude reigning in nature which comes like balmy rest to mind and body. Their eyes may wander over undulating landscapes, scan the far-off mountain tops or the majestic trees of some distant forest. They may see nature clothed in her livery of green, look upon her fields of waving corn, and her springing flowers. They may see the waters of the river roll along, and listen to the music of the rippling stream. They may hear the hum of insects or the lowing of cattle, and above all, may watch the flight and gyrations of birds, be interested by their activity, and if they have any taste or love for music and sweet sounds, they may be charmed by the songs some of our feathered choristers sing to give them a welcome within the hallowed precincts, the green isles and, colonnades of nature's great temple.

There is no tribe of animals that contributes more to the life and beauty of nature than our birds of freedom. They are our most lively and active workers and entertainers. Even their twitterings, chirpings, and varied tones of voice tell us of life and intelligence, while the songs of some of them are the very music of life, and their warblings seem to roll over our meadows and through our groves floods of the sweetest melody, especially when nature blushes with beauty and she holds her great festivals of fruits and flowers.

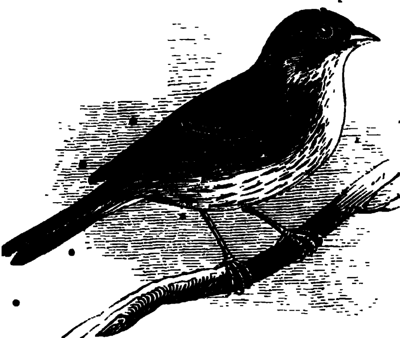
As there is so much that is interesting in birds we propose to refer to them generally, and then briefly to their structure, work, homes, and songs, hoping thereby to awaken in the hearts of our young readers a feeling of kindness towards our 'feathered friends.'

The following useful information on the life and habits of birds we give on the authority of Mr. Napier, who says: 'There are few pleasures greater than that of watching our smaller birds, their motions, their nest-building, and all their belongings. How tenderly they cherish their young, with all the care and solicitude of a higher class of animals. . . .

'The first week in the year the robin begins to sing from the bare hawthorn hedge, where it built its nest the preceding March. The larks collect, and when the snow is melted scour the wheatfields. The nuthatch cries, "Gou, dik, dik." The wagtails look lively. The missel-thrush sings its melancholy ditty. The song thrush joins in a melodious strain,

saluting spring ere it begins. The tits begin to twitter. The dunnuck utters its simple song. The chaffinches are first seen like schools of boys and girls apart, their courting-time not having arrived.

'The second week of the year sees the buntings in numerous flights. The linnets collect from solitary groups of two or three to large flocks. The rooks repair their old nests.



Corn Bunting.

'The third week of the year the blackbird whistles. The wren utters its feeble twitter. The skylark begins the strain that lasts nearly all the year; long before the leaves are seen, its hopeful song breaks forth in anticipation of spring. The yellow-hammers utter their "Tee, tee, teekee." The green woodpecker begins to laugh. The goldfinch sings and pairs. The wry-neck appears, the forerunner of the cuckoo. The willow wren is now seen. The blackcap begins to sing. The nightingale and the cuckoo come in April. The redstart, tit-lark, the wood-warbler, the swift, and whitethroat begin their peculiar notes.



Cuckoo.

'During this month the greater number of small birds begin to build and lay. April is the richest month in the song of our warblers. The swifts begin to leave us about the month of July. Most of the migratory warblers leave in the month of August. Now the chaffinches, goldfinches, and other birds

separate into schools of different sexes, and birds that were silent in the months of June and July begin their autumn song.' . . . 'And thus rolls round our year of birds.'


Goldfinch.

According to the observations of some naturalists, it appears that most birds are early risers. Taking midsummer time, the greenfinch begins to stir about 4.30 a.m., the linnet at 2.30, the blackbird 3.30, the redpole 3.30, and the bluetit about 5.30. The redbreast retires the last, but rises the first.

DISTRIBUTION OF BIRDS.

While many tribes of animals are to be found in certain latitudes only, we find birds of almost every size, colour, and form in nearly all parts of the globe. The dreary wastes of Africa, the cloud-capped mountains of Himalaya, the towering Alps, the lofty Andes, the coral-begirt islands of the Pacific oceans, and countries far north and south, not yet brought under culture, are vocal with the wild notes, the chirpings, or the chatterings of thousands of feathered denizens who find sustenance in insects and other living things, or in the spontaneous produce of the soil.

Some kinds of birds are of solitary habits, and live in pairs, or but a few together. Others have more social ideas, and seem to think that living together in large numbers constitutes the real pleasures of bird life. Sparrows, starlings, rooks, hawfinches, wild geese, ducks, quails, and many kinds of sea-fowl are particularly partial to each other's company.

F. A. Pouchet, M.D., in his book, 'The Universe,' states that 'the passenger-pigeons which traverse the forests of America fly in such compact masses that they intercept the rays of the sun, and cast a long track of shadows on the ground. These compact masses are sometimes six leagues, or twenty miles, in length, and that the passing of these columns occupies not less than three hours.'

STRUCTURE OF BIRDS.

The mental and physical organization of man in all respects constitute him the superior of all other orders of animal life. But, notwithstanding this, he must have tools and other appliances adapted to the kind of work he may have to perform. The farmer must have his plough to turn over the soil, the tailor must be furnished with needle and thread, the shoemaker with awl and last, and the writer with pen, ink, and paper, all of which are indispensably necessary in the trades and work we have referred to.

Birds, of whatever kind, are in their structure admirably adapted for their varied places in nature, and for the work they have to do. This we will endeavour to show.

THE FLIGHT OF BIRDS.

These animals belong to the vertebrata, and unite in their structure great strength and lightness. Their bones are dense, and most of them hollow, being filled with air instead of marrow. Air-cells are placed in various parts of the body to supply the cavities of the bones with air, and this air, when rarefied by the ascent of the bird into the upper atmosphere, finds an exit, by means of canals, into the air passages of the lungs. This gives buoyancy to birds in their flight. They are also furnished with the lightest of all coverings—feathers, which serve the threefold purpose of warmth, flight, and protection. So light are feathers, that all those on an owl of large size do not weigh more than an ounce and a half. These feathers all lie closely together, and point in one direction, from the head downwards, so that in flying they are not disturbed, or in the least ruffled.

The wings of birds are furnished with muscles of such power as to strike the air with great force and to impel their bodies forward with amazing rapidity, while the tail acts as a rudder to direct them in their course. If a bird, when flying, wishes to turn suddenly to the left, it will use the right wing with greater force than it will the left wing, thus producing the same result as a man would who, in rowing, used only one oar, by which his boat would be driven in an opposite direction.

The skeletons of some very large birds are exceedingly

light. That of the white pelican, which is five feet long, weighs only twenty-three ounces, while the bird, when alive, often weighs twenty-five pounds. Birds which fly the most have the lightest legs.

The Bills of Birds.

These are more or less pointed, which in some measure also direct and facilitate the flight of birds. The bows of the passenger steamboats on the Thames form acute angles, so that they pass the more easily through the watery element. The pointed beaks of birds answer a similar purpose.


Peregrine Falcon.

The bills of all birds consist of two mandibles, the upper and lower, the former being fixed and immovable, though in parrots it has the power of motion to assist them in climbing. Birds have no teeth, but the horny case which covers the mandibles supplies the place of these instruments, and is sometimes serrated so as to resemble them.

The bills of some birds are straight, of which those of the woodpecker are an instance. This bird is an insect-eater, but does not always find its food on the surface, but generally in the crevices of old trees, in which insects are often deeply embedded. To procure them, the woodpecker will hang by its claws on the rough bark of a tree, its short tail being placed against it for support, while it taps away with its straight beak to disturb the insects it is in search of. The moment they move, the tongue of the woodpecker, which is furnished at the end with hairs like minute spears, sweeps them up, and then, drawing in its tongue, the bird at once lodges them in its stomach. Such is the rapidity with which the woodpecker moves its beak backwards and forwards in tapping for insects,

that it is supposed to travel at the rate of more than one hundred miles an hour.

Grain-eating birds have short, thick, strong beaks, suitable for partially crushing hard substances. Birds feeding on worms, slugs, snails, and ripe fruit, have rather long soft beaks. Carnivorous birds, such as the falcon, vulture, sparrow-hawk, and many others, have beaks, not only large, but very strong, sharp, and hooked. With these they can easily cut or tear the flesh from a dead animal, and at the same time can hold it down firmly with their powerful talons, and in a short time satisfy their ravenous appetites. Such bills and claws are the carving-knives and forks nature has given to birds of prey.

Wading and Swimming Birds.

Wading birds, or those who find their food at the bottoms of shallow streams, have long legs, partially-webbed feet, long necks and bills, the latter often being slightly bent, which is particularly the case with the avocet, a wading bird at one time common in Norfolk, and which, on account of its partially turned-up beak, was known as 'the cobblers'-awl duck.' Wading birds have short tails, so that when looking for their food they are not put to inconvenience by those tails draggling in the water, or trailing in the mud.



Avocet.

Swimming birds have fully-webbed feet, by which they can propel themselves along the surface of water, as a man would a boat by plying his oars. Most birds of this family have long necks, which enable them to reach the bottoms of ponds and rivers, where ducks and geese may often be seen as if standing on their heads, and their tails just in sight. These birds have also flat bills, and at the ends of them are very many sensitive nerves, by which they can distinguish the food proper for their sustenance.

THE EYES OF BIRDS.

Birds are endowed with the five senses, which in some of them are even more acute than in human beings. The sight of most birds is, no doubt, exceedingly keen. Their eyes are so disposed as to take in a wide and extended range of vision, being placed, not in the front of the head, but at each side of it. The sparrow-hawk discerns small birds at an incredible distance. Besides the ordinary eye-lids, there is a third, called the nictitating membrane, which is translucent, and defends the eye of the bird from the direct rays of the sun, without obstructing sight.

The eyes of owls are large and beautiful, but being fixed by ligaments in a kind of case or truncated cone, are incapable of motion; so that whenever these birds change the objects of their vision, it is done only by moving their heads, which they can turn so far round as to look down their own backs. Their large eyes being capable, on account of their internal structure, of receiving the smallest amount of light, are of great advantage to these birds in their nocturnal habits, as they can discover their prey more easily than those birds can do who feed and work by day, and rest at night. Under the eyelids of owls are thin membranes, which, during the day, they draw over their eyes, as ladies do their veils over their faces, to protect them from the strong sunlight. It is also said that owls have a keen sense of smelling and hearing.

There can be no doubt that it is owing to the last-mentioned sense that carnivorous birds can scent their food often hidden from sight, and at very great distances from them. It is by smell only that, in numbers of cases, they are guided to their prey. That birds of every kind are endowed with the other three senses of hearing, tasting, and feeling, needs no proof. They relish some kinds of food, and reject others, and feel not only bodily pain, but, we affirm, may suffer mentally also. In reference to hearing, we may notice that birds have no external ears, with the exception of the nocturnal tribes; these have a large exterior conch, in the form of a long leathery piece of flesh. The internal ear, however, is very large, and their sense of hearing very quick.

MINIATURE AND GIANT BIRDS.

The differences in the sizes of birds are wonderfully great. There are birds whose outstretched wings measure five, ten, and even twelve feet from tip to tip. Such are giants in size in the bird world. There are also birds so small, that their nests are scarcely large enough to contain a walnut. These we may term the miniature members of the feathered race. The cavity of the egg of a now extinct bird of Madagascar, known as the epiornis, was large enough to contain 12,000 humming-birds' eggs.

Some birds possess great physical strength. The leg of a man may be broken by the flap of a swan's wing; and a blow of the same kind from an eagle has been known to be immediately fatal. Eagles have carried off, not only lambs and fawns, hares and rabbits to their eyries, but even children have been seized by them, and taken to a considerable height in the rocks. The ostrich is of such prodigious strength that it could, with a man on its back, keep pace with a horse. It can digest, not only bone, but metal. Birds of prey, and those that feed on flying insects, have such marvellously large and powerful wings, that they can hover a long time in the air apparently with but little fatigue. Falcons often fly above the clouds whither no eye can follow them, and there remain with but little exertion.

While some birds, such as the partridge and the pheasant, just whirr along but a few feet above the earth, some of the eagle tribes soar aloft far beyond the sight of man, and there hover on the wing in the full splendour of an unclouded sun.



Partridge.

Hans Sloane says: 'There is something marvellous in the organism of birds. The sea-mews, which nestle on the rocks of Barbadoes, take every day a journey over the sea of 390 miles to amuse themselves, and

seek for food in distant islands. Launched like an arrow into space, the condor can clear, playing all the while, sixty miles an hour.' Cleaving the air like a mighty-winged giantess, this same bird has been known to rise from 10,000 to 15,000 feet above the level of the sea, to deposit her eggs on the towering mountains of South America.

The swallow, our annual visitor, has been known to fly at the rate of sixty miles an hour for ten hours a day. If this could be continued for ten years, this bird would travel over 2,184,000 miles, which are equal to a voyage eighty-four times round the world.

What numbers of men, costly materials, expensive tools, large sums of money, ingenuity, time, and labour are required to produce a locomotive engine! The iron ore must be brought up from the mine, then crushed, and the metal separated from the stone. The iron must then be smelted, cast into bars, and conveyed to some factory, there to be worked up into a railway engine. But even when completed, iron rails must be laid down for it to run upon, and when placed there, will require an engine-driver, fireman or stoker, water, and fire to convert it into steam, to propel it onwards at the rate of sixty miles an hour or even less.

But no material, ingenuity, labour, or money at man's command could produce a swallow, which comes beautiful and perfect from Nature's own hand. This frail bird-body, only the length of one's finger, requires no coke, no coal, no fire, no water or steam to assist it in its flight, nor does it need an engine-driver to direct it in its course, and yet by its own strength, borne along by its own little wings, it can travel as fast as a locomotive engine.

We may here notice one curious fact in reference to the young of raptorial and other birds, who build their nests above the ground, that when hatched they are blind, entirely devoid of feathers, and must be constantly fed by the parent birds some weeks before they are fledged and can secure their own food. The young of those birds, such as the partridge, pheasant, and many others, that are hatched on the ground, are at the time covered with down, which in a short period develops into feathers, and their eyes are open; but even before this, when they are but a few hours old, they instinctively begin to pick up their own living.



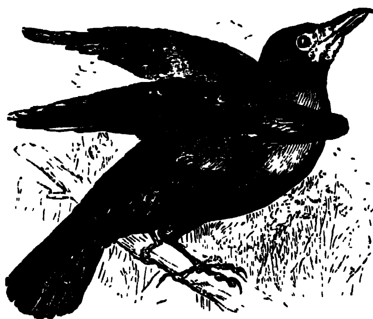
CHAPTER IX.

OUR FEATHERED LABOURERS: THEIR WORK AND WAGES.



SOME people look very unfavourably upon our small birds, and think they do more harm than good in nature, and therefore strongly recommend, if not their extermination, yet a very considerable lessening of their numbers. We think such persons are profoundly ignorant of the uses of birds, and that their prejudices against them are altogether unfounded.

Although we advocate the claims and rights of our feathered labourers to take the food they select for their sustenance, we candidly admit that some of them are mischievously injurious to, and destructive of, various kinds of produce. Sparrows, for instance, often pluck up delicate blades, and particularly the shoots of green peas, just as they are peeping above the ground, and so necessitate the sowing of new seed, which is annoying and a loss to the owner. But as sparrows have no knowledge of 'the rights of property,' we can hardly regard them as delinquents, either in the eye of the law or in that of morality. Their destructive proclivities do not constitute a reason why they should be exterminated, nor do they prove they do more harm than good.



Rook.

Rooks must plead guilty to pulling up corn, bean, and

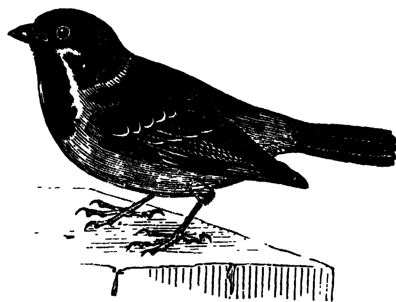
potato seed just as they are germinating, and, without consuming the whole of them, leaving the rest to wither in the hot sun.

Thrushes and blackbirds have also been accused, and perhaps justly, not only of purloining strawberries, cherries, and other kinds of fruit, but of wantonly plucking many they do not eat, and dropping them on the ground, there to rot and to be devoured by insects. Could these birds receive those useful lessons taught in 'schools of economy,' they would no doubt learn to be less extravagant, and less wasteful of precious fruit than they now are. Magpies have been known to carry to their nests broods of ducklings, and hawks are sometimes guilty of purloining the young from the nest of the magpie, and from other and smaller birds.

But against this dark side of bird life we can show a bright one; and there is no doubt that in the character of those birds we condemn the most, may be found some redeeming quality or other, and proofs that all of them are more or less useful.

SPARROWS.

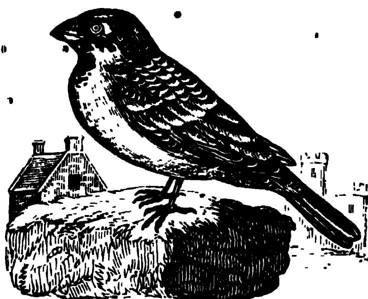
Mr. Bradley, in his 'Treatise on Agriculture,' states that 'two sparrows, during the time they were feeding their young, carried, in one week, 3,360 caterpillars from a cabbage garden to their nest.' Caterpillars eat about four times their own weight in food every day, and although they infest our gardens but a few weeks in the months of May and June, nevertheless devour a great amount of vegetation. Some years since the members of a sparrow club shot, in one winter, 17,000 sparrows. Let us suppose this number of birds to destroy only one half of the number—3,360 caterpillars—mentioned above; then they would destroy 28,560,000 caterpillars in the same time. To employ a person to pick them up at the rate



Tree Sparrow.

of one shilling per 5,000 in one day, it would require 816 weeks, or more than fifteen years to accomplish this task, and would cost £285 12s. to do what the 17,000 slaughtered sparrows could have done at very little expense. Supposing 28,560,000 caterpillars each to consume one farthing's worth of fruit and vegetables in one week, the whole eaten by them would amount in value to £29,750. Assuming that all sparrows help in keeping caterpillars in check, what a vast amount of good they must do in this particular! Sparrows are useful also in destroying insects which prey upon the leaves of trees.

Some years since the people of New York exterminated the sparrows from their city because they thought their flowers, fruit, and vegetation suffered by their depredations. But they soon discovered the mistake they had made. On the summer following the destruction of these little active workers the caterpillars and other insects had it all their own way, and increased so much in numbers as to devour, not only vegetation, but the leaves of the trees; so that when they should have been clothed in foliage they looked as if they had been blighted by lightning. The people were therefore glad to have the sparrows back, and so much do they value their services now that in many parts of the city and its suburbs may be seen small wooden houses, placed in convenient situations for the special shelter and comfort of the sparrows, who by working away as before so far keep down the preponderance of insect life that the gardens, trees, and flowers of New York look as beautiful, fresh, and flourishing as they did before the sparrow scavengers were destroyed. Do not all the above facts speak strongly in favour of the value of sparrows?


House Sparrow.

Having, in our chapter on 'Miners of the Soil,' referred to the great utility of the rook to the farmer in destroying the larvæ or grub of the cockchafer, the red and white wireworm,

so destructive to the roots of corn and grass, and having pointed out the uses of the tomtit and other small birds to the gardener and fruit-grower, we pass on to notice the

Utility of Owls.

Owls prey upon animals who, like themselves, come out by night in search of food. They are partial to frogs, land and water rats, and particularly to field mice. The latter animals, often very numerous in the same field, will run up the stalks of wheat, nibble away at the ears, eating and wasting such a quantity of grain that the farmers regard them as the most destructive enemies with which their fields of corn can be infested.



Long-eared Owl.

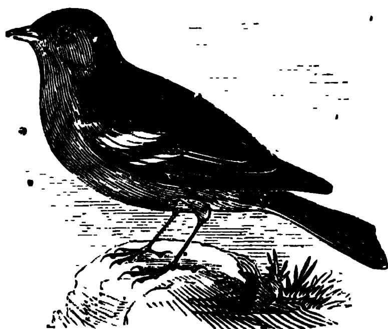
We give, in substance, the following information, on the authority of the late Bishop Stanley. A certain district in the neighbourhood of Bridgewater, in Somersetshire, was one summer overrun with field mice, whose destructive proclivities caused such devastation among wheat and other corn crops that the farmers became alarmed and fearful that they should have no harvest, or but a very poor one, and consequently would have to suffer great pecuniary loss. What was to be done? Trap-setting was of no use, and no other means could be suggested to stay the ravages of these tiny nocturnal animals. The farmers were helpless, and all they could do was to leave the mice 'masters of the situation,' and to resign themselves to the loss which appeared to be awaiting them.

Suddenly, however, a large assemblage of owls, coming from all the surrounding parts of the country, made their appearance, and forthwith set to work in thinning the ranks of these little devastators, and in a few nights had destroyed so many of them that the difference for the better was perceptible. The hopes of the farmers revived, and they reaped

much better crops than they at one time anticipated they would do. Owls are indeed the farmer's friends.

CHAFFINCHES.

Although, on the one hand, some gardeners complain of the mischievous propensities of birds composing the Finch family, on the other hand these birds are very useful in nature and great friends to the agriculturist, inasmuch as they destroy the seeds of the thistle, and thus help very considerably to keep that plant in check. It may be an indication that the land is good where thistles grow and thrive, but they are of so hungry a nature and so impoverish the soil that the crops of corn among which these plants appear are generally very poor, and often not worth half as much as they would have been had the thistles not been there.



Chaffinch.

It is much to be lamented that here in England chaffinches are being captured, sold, and killed by thousands every year. In one season about thirteen thousand finches, and some other kinds of small birds, were taken along the coast of Sussex. Some of these were sold alive as foreign song-birds, and the rest were despatched to various large towns, and their feathers used for ornamenting valentines and the adornment of ladies' hats and bonnets, and for other purposes.

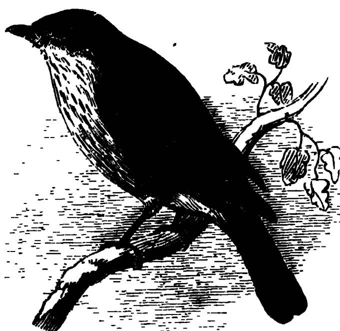
The colonists of Australia, however, know so much of the real value of finches that they are importing them every year from this country, and encouraging the breeding of them in their own in the hope that they will be able in time, by the aid of these birds, to keep down the preponderance of thistle-life which has hitherto baffled all their attempts to destroy. The finches are also useful as insect-eaters, and as their song is sweet, they are no doubt very welcome guests in that far-off

land, where so many of English birth have found new homes.

In corroboration of what we have already stated respecting the great value of birds, who are the scavengers of our gardens and orchards, we quote, on the authority of the *Gazette*, an address issued by the 'Thuringian Society for the Protection of Birds,' and headed,

'VALUE OF A BIRD'S NEST.'

'Fellow-citizens! your boys but too frequently empty or destroy birds' nests; some for the sake of the eggs, others for the young brood itself. Supposing there be five of the latter in the nest, each one of the young birds requires for its daily food on an average about fifty caterpillars, or a like number of insects, which the old birds have to catch near by, making a total of at least 250 per diem during feeding time, which generally lasts from four to five weeks—let us say thirty days—which would be a total supply of 7,500 for every nest. . . . If we suppose a caterpillar to consume one blossom a day for thirty days, each of which might have produced a fruit, this simple calculation would imply the destruction of 225,000 for the 7,500 caterpillars referred to above. In other words, if your boy had not destroyed the nest, you and your neighbours would be richer by 225,000 apples, or pears, or plums. Should, moreover, the caterpillar, as it is but too apt to do, destroy ten, twenty, or thirty blossoms a day, or the latter, for want of leaves, be deprived of nourishment, and consequently drop off and be equally lost to you, just fancy the amount of damage done. Therefore be wise, and consider the true value of a single nest.



Spotted Fly-catcher.

Those who have a dislike to flies because of their teazing propensities will no doubt admit the utility of one little feathered friend, the 'fly-catcher,' who has to labour very

hard to fill the gaping mouths of its young brood with flies, which constitute their principal food. How true it is that we are apt to be selfish in things relating to our own interests!

SWALLOWS.

Who in England does not hail with pleasure the appearance of the swallow in our midst; that well-known bird, who yearly comes to us from distant sunny climes, and which has so much confidence in our hospitality and humanity as to build its nest under the eaves of our dwelling-houses, where it lays its eggs, hatches its young brood, and attends to their wants with all the tenderness of a bird's heart and bird nature? Who has not been charmed by watching its graceful evolutions, now suddenly rising, then falling, and anon in its rapid flight skimming the surface of some pool, lake, or pond? Who could wantonly shoot a swallow? The man who could do so would show that he had a callous heart, and especially so if he had a knowledge of the valuable services this bird renders to gardeners, florists, and farmers. It would be better for the latter to be robbed of a pig, sheep, geese, or fowls than to be deprived of swallows, who, while on the wing, are working for his benefit as well as for the preservation of our fruits and flowers.

The swallow is an insectivorous bird, and subsists in a great measure upon a destructive insect named the plant-louse, but which is of so small a size as to be almost imperceptible. This insect produces about one hundred young at the same time, and there are not less than nine generations of them in one season; so that by the time of harvest they literally exist in millions, and form a kind of flying cloud. Wherever they alight, whether on corn, fruit, or flowers, they do an incalculable amount of damage. It is generally on a warm summer evening that the swallow in its flight, and with



Chimney Swallow.

its beak wide apart, passes through these swarms of insects, numbers of which are soon caught in the mouth. A sharp click, caused by closing the bill, may then be heard, and the captured insects at once disappear down the swallow's throat. This is repeated many times.

BIRDS OF PREY.

We may regard the long, naked neck of the vulture with abhorrence, because of the purpose for which it was intended; the carrion crow may be very repulsive to us, because, with its voracious appetite, it gloats over the decaying remains of some dead animal. But these birds, and many others belonging to the same family, have their great uses in a sanitary point of view.

Were all those animals, killed by disease or accidents in our fields and woods, left to decompose, they would so impregnate the atmosphere with impurity (especially in hot countries), as to produce malignant fevers, or diseases of various kinds, which would no doubt in many cases have a fatal effect upon numbers of human beings. Such birds then, who, by consuming rotting animal matter, prevent pestilential complaints, should be valued as necessary, useful, and active members of the 'Board of Health.'

BLACKBIRD AND THRUSH.

Having already admitted the somewhat objectionable habits of these birds in reference to the way in which they often dispose of ripe fruit, especially cherries, it must be remembered that their food, even during the fruit season, does not entirely consist of these sweet morsels, but that they consume a great number of slugs and snails, who prey upon garden produce, particularly on strawberries, and would, if not destroyed, cause so great a scarcity of them that they would become a rarity in our shops and markets.

Many people who indulge in rich dinners, think it necessary to take some kind of liquid or fruit afterwards by way of a corrective. If the birds alluded to help to save our fruit by filling their crops with such luscious food as slugs and snails, no one would surely be so cruel as to prevent them from having correctives to their dinners, as well as compensation for the good they do.

Then for the fruit they eat and the little they spoil they give us in return their sweet songs, as if thanking their Creator and us for the bountiful dessert they have so heartily enjoyed. Who then could be so niggardly as to begrudge a few cherries in exchange for the mellow notes of these woodland singers?

The Rev. F. O. Morris, in one of his books, 'Humanity Series,' says: 'A neighbour of ours has a very fine cherry-tree, from which the fruit was sometimes stolen by the birds; he borrowed a gun to shoot them. He fired, and a fine blackbird was killed. Sorry for what he had done, our neighbour had the bird stuffed, and under it the following lines:

'The world was mine, and free to range,
My life and songs were merry;
But world, and songs, and life are gone,
Because—I stole a cherry.

'Ah, mortal man! my folly blame,
But be not over merry;
Eve's apple once your ruin proved,
While mine was but a cherry.

'God feeds the ravens when they cry,
His birds are blithe and merry;
But man has such an envious eye,
He shoots us for a cherry.'

Although all birds are of some service in the economy of nature, the following birds deserve special notice, because their uses are so great, namely, the long-eared owl, barn owl, tawny owl, spotted fly-catcher, dipper or water ouzel, hedge-sparrow, redstart, whinchat, wheatear, sedge-warbler, reed-warbler, nightingale, wood-wren, chiff-chaff, long-tailed titmouse, white wagtail, tree-pipit, meadow-pipit, and green woodpecker, including all those before noticed.

The above birds live principally on different kinds of flying as well as ground insects, such as beetles, moths, gnats, slugs, snails, worms, earwigs, woodlice, grubs, caterpillars, larvæ of caddis-fly, pupæ of dragon-fly, ants, and insects from mud, etc.

Wherever ignorance and foolish prejudices have prompted men to thin the ranks of this army of winged labourers, the results have shown that birds are scavengers we cannot do without. They alone can keep down the preponderance of voracious, destructive insect life. Man would be totally helpless in waging a war of extermination against these hosts of insect workers.

Man may fathom the ocean, measure the distance of the planets, and define their revolutions; he may know almost every language, write books on theology, history, and science; he may solve the problems of Euclid, be as eloquent as Demosthenes, as wise as Socrates, as strong as Hercules, as logical as Locke, as mathematical as Newton, as polemical as Pitt, as cute as Erskine, as facetious as Curran, as fluent as Whitefield, as zealous as Wesley, as clever an engineer as Brunel, as musical as Mendelssohn or Paganini, as warlike as Napoleon, as great a strategist as Wellington, an explorer like Columbus or Cook, and as bold and heroic as Leander; he may invent mowing, ploughing, and talking machines; he may flood our towns with electric light, wire his messages to the antipodes, telephone his thoughts to distant friends, and he may rule the destinies of millions of his fellow-men; and yet, after all, he cannot effectually do battle with those minute forms of insect life which, in spite of him, make such ravages among our fruit, flowers, fields, and forests. They defy him and set at naught all his inventions.

In one season an insect came in such myriads as to stop the cultivation of the sugar-cane in Granada. Twenty thousand pounds were offered to any one who was clever enough to suggest some plan to effectually stay their ravages. No one, however, came forward to do so; and had it not been that a heavy shower of rain came down and swept them away, and so put an end to their destructive work, the owners of the sugar-plantations would have been almost ruined by them.

Every now and then clouds or armies of insects have unexpectedly appeared, and in a single night have devastated whole crops. Farmers have been panic-stricken when swarms of flies have devoured the young leaves of their turnips, or when the blight has threatened both fruit and corn with utter destruction.

A few years since, we were alarmed by the Colorado beetle, and soon afterwards by the Phylloxera infesting our vineyards. And now the news comes to us from Russia of the appearance of a dangerous and ravaging corn-beetle.

Against all these things man has comparatively no remedy, only in torrents of rain and in the labours of our insectivorous birds. Nature seems to turn to man and to say: 'Destroy the birds, then wilt thou toll the death-knell of nature's fruit,

flowers, and beauty.' Does it not seem that those who ignorantly or wantonly sacrifice the lives of our useful feathered labourers are doing all they can to bring upon our country nothing less than a national calamity? If the 'labourer is worthy of his hire,' then we should willingly and cheerfully allow our little bird-workers the wages they may please to take, and which they so dearly and honestly earn.

We put in the following plea on behalf of our useful feathered friends:

'Oh! spare our freeborn English birds,'
  They earn their simple food;
And if they take a little corn
  They're also doing good.

They sing and work the live-long day,
  And from each flower and tree
They pick those tiny insects up
  No human eye can see.

Then let them fly where'er they please,
  The woods and fields among;
They'll give their thrilling melody,
  And cheer you with a song.





CHAPTER X.

IN THE BUILDING LINE; OR, BIRD HOMES AND FAMILY TIES.



HERE are but few words in the English language sweeter than the word *home*, excepting that of mother. Home is invested with charms and attractions we find nowhere else, to the same extent, in the wide world. All its associations and surroundings are so many links binding us in thought, affection, and a kind of loving bondage, to the spot where first we saw the light, and in after years were guided by the counsel of a fond father, and soothed in the little sorrows of our childhood by the gentle voice of a beloved mother.

In human life, the separation of the nearest and dearest friends seems to be inevitable. But though years pass away, and oceans may roll between parent and child, yet how often will the absent one indulge in reminiscences of his or her old home! If through success there should be fewer thoughts of it than usual, the first little trouble or difficulty that may overtake the one far away will waft his thoughts back to home; and if affliction should lay its hand on the body, the word 'mother,' with all the tender ministrations associated with it, will come with thrilling power both on mind and heart. What a yearning there would be for the old home, for old scenes, and for a repetition of those happy days long since past! How feelingly would such an one say—

'There's no place like home!'

All animals, from man to the smallest insect, have homes of some kind or other. Man may call the land in which he was born, and where he lives, his home; but he may use the word in a more exclusive sense. That place is the home of man

wherever he and his family may reside, if they are united in strength, love, and sympathy.

The homes of birds, to which we are about to refer, are their nests, which show not only many styles of architecture, but much skill, sagacity, patience, and intelligence, as well as a vast amount of labour and perseverance.

Pairing.—It is a marvellous thing, that with such unerring precision and regularity birds should betake themselves, at the same time of the year, to pairing, building their nests, laying their eggs, and rearing their young ones.

As amongst human beings mutual love is generally followed by courtship, preparatory arrangements for a home, and a ceremony which unites the pair in the bonds of 'holy matrimony,' so in the bird world much of a like nature seems to take place, with similar results, beginning, as popular belief would imply, when the year is young, or, as some suppose, on Saint Valentine's day.

From what in early spring and summer we see of the habits and surroundings of birds, we are bound to admit that they not only pair-off, but probably live together at least through the season; yet the notion that all birds simultaneously select their mates on the Saint-day mentioned is scarcely worthy of credence.

In their voluntary choice of each other, as progenitors of the feathered race, birds prefer those of their own kind, and so, in their wild freedom, carry out Nature's law. Ill-sorted marriages, such as those which are often formed by mankind, are not, we should imagine, to be found amongst birds. They cannot fairly be charged with sordid motives in their union with each other. They may, however, like higher beings than themselves, sometimes be a little selfish by trying to secure the one they fancy the most. But this is perfectly natural, and therefore pardonable.

Courtship.—That birds use various means to win each other's love, there can be no doubt. One kind will even be playful in their gyrations, and pay every attention to each other's wants, and so in this way show themselves to be thoughtful, kind, and affectionate lovers. Other tribes of birds, particularly the males, will assume airs of importance, strut about like grandees, and exhibit their beautiful plumage to the best advantage they can, in order to captivate the

females of their choice; and then the songster of unpretending colour—it may be in a coat of russet-brown, black, or speckled—will, to outvie his rivals, discourse the sweetest music he can to win the love of some feathered bride.

This emulation in song seems to prevail very extensively among nightingales, who appear to know that the winning of their mates depends principally upon their incessant efforts to please by producing their loudest and sweetest notes. It often happens, however, that the female keeps the singers in suspense for days before she selects that bird whose song may have attracted her the most; but when she has done so she flies at once to the bird that has been successful in his wooing. Thus the marriage-knot is tied.

The following verses have special reference to the above remarks, and also to the most important, interesting, and perhaps anxious period of bird life; the time when birds are busy and merry—busy in building, merry in looking at their little castles containing that which to them is dearer and more lovable than anything else on earth; where are hidden forms of embryo existence so carefully nourished and protected by them until they come into active life.

On a bright and joyous morning,
  In the budding time of spring,
Feathered songsters made the welkin
  With their sweetest music ring.

As the gorgeous sun was setting,
  Each bird sought its home and rest
In the hedgerows, trees, and bushes,
  Or a warm and cozy nest.

Glittering stars, like golden dewdrops,
  Threw their light across the vale,
Where, in notes of love and wooing,
  Sang the merry nightingale.

And he sang as if to welcome
  To his little throbbing breast
(Just the same as other lovers)
  One that he could love the best.

Soon his song, so rich and mellow,
  Won for him a nice brown wife;
Who in turn brought chirping young ones,
  All to him the wealth of life.

Bird-Homes.—In nest-building, each kind of bird has its

own style of architecture, and carefully adheres to its own plan. Birds do not imitate one another. The blackbird makes its nest with an open top; the titmouse prefers a side-entrance to her dwelling. 'The nightingale who sang its merry song a hundred years ago in our woods, built its nest then as the nightingale did that you listened to in the coppice last year.' And this may be said of all other kinds of birds, at least in our country.

Man, who is endowed in a higher degree with reason and understanding than the lower animals are, and is therefore the most inventive and ingenious, can build his house, or his home, as his pleasure may lead him. He may erect a lowly hut or a magnificent mansion, which he may render delightful by gardens, fountains, flowers, or avenues; but even then he must be aided by proper materials, purchased at great cost, and by various tools manufactured and suited for the purpose. But a bird is not thus supplied. When she has to build, if the materials are there, she will know how to use them; but 'she has no needle, no thread, no scissors, no hammer, no glue, no nails; nothing but her own little feet, her own little bill, and her own little round breast to mould it . . . And yet how nicely finished.'

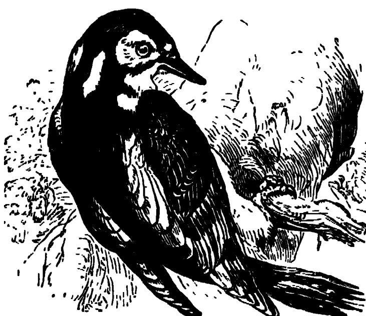
No sooner is a nest required for the eggs a bird is about to lay, than the proper place is selected to build it in. To which of the two mates this important duty belongs it is difficult to determine. There is, we think, much to be said in favour of the idea that both of them share in this duty. After pairing-time, birds in twos may often be seen closely inspecting hedge-rows, bushes, and trees, and may be heard chattering and twittering very loudly, as if having an altercation about something they are not agreed upon, which we have supposed has arisen from a difference of opinion as to a place selected being suitable or unsuitable for their nest. Wherever they build their nests, it is no doubt by mutual consent.

The females of all kinds of birds appear to possess in a much greater degree the faculty of constructiveness than do the males, and are therefore generally the builders, the duty of the male bird being to find and fetch the materials for the nest.

The following anecdote of nest-building will help to illustrate what we have just stated. A few years ago a gentleman, well known to the author, had a male and female canary who

lived in the same cage, into which, at the proper season of the year, he put materials for a nest. The female forthwith began to build, and worked with great assiduity until she had made about half the nest. It is probable she exhibited signs of fatigue, which the keen eye of her mate did not fail to discover. Judging from what he did, he seemed to say to his partner: 'Now, my bird wife, you are tired; rest a bit, and I'll work at the nest.' He tried his best to do so, but only showed his ignorance of the art of building. He could make no progress worthy of his wish or his efforts to help and to please. He knew little about interweaving or arranging the materials. Indeed, he began to mar what the little feathered lady had done, at which she was much annoyed. She showed her disapproval by giving sundry pecks at his body, and gave him to understand he had better give up the job, which he did at once. She then resumed her work, soon completed her little home, laid her eggs, hatched them, and in due time she and her mate had the care of their little yellow offspring, on whom they no doubt looked with pride and pleasure, as family ties helping to reconcile them more than ever to the very limited freedom they were allowed in their cage home.

The different kinds of materials used by wild birds in nest-building — their varied styles, shapes, and sizes, the manner in which the materials are disposed of and arranged in these fragile structures, are very suggestive, not only of amazing instinct, but of intelligence and ingenuity, and also of many trades followed by man. For instance, the rook, missel-thrush, the bullfinch, and the jay, are *basketmakers;* the chaffinch, the greenfinch, and the hedge-sparrow are *weavers*. The beak beats the shuttle out and out. The woodpecker is a *carpenter;* the titmouse is a *dome-builder;* and swallows are *stonemasons* and *plasterers*.



Woodpecker.

The materials of which the nests of birds are made are not

only varied, but simple and inexpensive. Nothing superfluous is used by these little builders. Comfort, utility, and safety are what they aim at securing. They are not like man, who, to ornament his house, often uses the most costly materials—it may be polished granite, white or blue marble, various kinds of wood brought from over the sea, gold and silver gildings, furniture, mirrors, carpets, and a thousand other things useful and ornamental, but all purchased at the cost of a vast amount of money, and produced at the expense of much time, labour, study, and human ingenuity.

But the homes of our feathered friends are made up of a few sticks, a little grass, some moss, a trifle of wool, a few feathers or dried leaves, and even mud, and yet how ingeniously most of them are contrived—how snug, warm, and cozy are these little nurseries of bird life! Nothing has been overlooked by the builders. Each kind of bird makes its nest just the size required for its future young.

Man is not at all times thus careful in his calculations and arrangements. We have been informed, on good authority, that a certain gentleman who had made a fortune in the city of London, resolved to build a small suburban residence, and, to save the expense of an architect, drew up the plan of it himself. This he showed to a friend, who, though he admired it, soon discovered the arrangements were not complete. Everything necessary to make the rooms on the three floors convenient had been thought of, save the staircases, which had been entirely forgotten in the plan. This was a great oversight. Bird-builders are much more accurate in their work than the would-be architect referred to was in his.

Different kinds of birds build in different places. Many of them do so on the banks of our rivers, streams, lakes, ponds, and some in our marshes. Others prefer the seclusion of our forests, while many make their homes in our gardens, fields, shrubberies, hedgerows, and orchards. Rooks build their cities on high; some small birds select a hole in a bank, wall, or hollow gate-post; while birds of prey prefer the summits or the crevices of inaccessible rocks. Jackdaws, as if they had antiquated notions and pious proclivities, are fond of the ruins of castles and the steeples of churches; the swallow makes its nest under the eaves of our dwellings, and the familiar sparrow lodges in the ivy of our houses.

The grossbeaks, or hawfinches, sometimes erect an immense dwelling-place to contain five hundred or six hundred inhabitants. They form a kind of building society, and live happily together. They first make a roof of large plants, and make it rain-proof. Under this the nests are arranged side by side. To each nest there is a private entrance, but sometimes it happens that one entrance will give access to two or three nests.


Hawfinch.

Shapes of Nests.—The shapes of some nests are very remarkable. That of the golden-crested wren is purse-like, and she hangs it to a bough, sometimes of great length and very slender, so that

> 'When the wind blows the cradle rocks.'


Nest of Titmouse.

The nest of the long-tailed titmouse is a marvel of bird architecture and ingenuity. It is of oblong shape, with the entrance a little way down the side of it. It is usually built in the angles of three or four branches, and is very secure. Its structure is graphically described in the following lines, in which we are invited to

'Look at it close all knit together,
Moss, willow, down, and many a feather;
Cozy and warm within you'll see
A very numerous family.
Sixteen young chirping things all sit
Where you your wee hand could not get.
I'm glad I've seen it, for I never
Saw aught before so soft and clever.'

'The common magpie, in order to protect its little ones, constructs a regular casemated citadel, into which it enters, and from which it issues, merely by a narrow passage. Only that, in lieu of woodwork and earth, the nest is covered with closely interlaced branches, which also defend it against the eagles and falcons, the brigands of the air.'

Water-hens so construct their nests that we may call them naval architects. 'The nests of these birds are built near the edge of the water, and sometimes on its surface. In the one case these nests are so many little altars raised above the ground, and crowned by an arbour of reeds, the bent leaves of which form an elegant little vault of verdure above the brood. In other cases floating on the surface of some pond, and almost totally concealed from sight by a hedge of young reeds, sloping from the edge of the nest into the water, and forming a kind of ladder by which the family are enabled to mount to their resting-place after swimming home.'


Little Grebe.

The nest of the little grebe is also a wonderful specimen of naval architecture. 'It consists of a mass of stems of water-plants compactly secured together, and forming a regular raft. On this floating nest the female lays her eggs, and hatches her young. It is generally found in lonely places among reeds and rushes. If the grebe is discovered, she puts one of her feet in the water, uses it like a paddle, and transports herself, young ones and nest, to a distance, just where she pleases.'

The tailor-bird, or seamstress, builds a nest which displays great ingenuity. It first secures some large leaves of oblong shape, and tapering towards the outer extremity, the edges of which are put together. She then, having previously obtained some flexible grass, makes holes in the leaves with her beak, and sews them together closely and securely with the grassy thread, and so forms a kind of pocket or sack. This she fills with cotton, and in it deposits her eggs and rears her young; and being suspended in the leaves referred to, is swayed to and fro by the gentlest wind. Some time since some of these nests were exhibited in the British Museum.

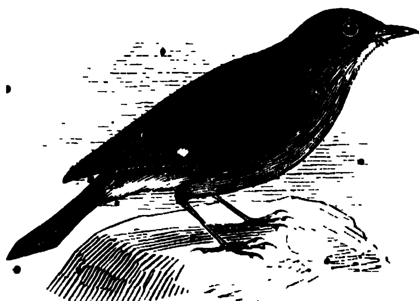
The nests of some foreign birds are very curiously shaped. That of the Cape titmouse is nearly the shape of the water-bottle commonly seen on the washhand-stands in our bed-rooms. The entrance, which is at the top of the nest, is just large enough to admit the bird, but the body of the nest, which bulges out considerably, seems capable of accommodating several birds of full size. The top of the nest is secured to a branch, from which it hangs pendant.

Pouchet, in referring to the curiously-constructed nests of different kinds of birds, says, 'Some consist of a sort of purse, having in the interior several little panniers affixed to its sides, in which the female places her brood, to prevent them from falling. In this case, the entrance is frequently situated at the lower part, which represents a kind of gaping funnel, by which the wedded pair enter and leave the family mansion.' Some nests are suspended to the branches of trees overhanging water.

'The esculent swallows, very common in China and the neighbouring islands, build nests which resemble so many bowls, which they affix by thousands to inaccessible rocks, or in sombre caverns, as if to hide their chaste loves from every gaze.'

'Flamingoes place their nests upon the ground, and build them solely of coarsely-tempered mud. These nests are very curiously shaped, being like a narrow, lengthened cone, and are about twenty inches in height; their truncated summit presents a concavity, at the bottom of which the female deposits two or three white eggs. In order to hatch them, she places her abdomen over them, and allows her legs to hang down on both sides of the raised cone which forms her edifice.'

The nest of our reed warbler is formed of tangled grass, and fixed to three or four stems of the common reed found growing by the sides of ponds, and other sheets of water. The shape and external appearance of the nest is very suggestive of the turban of a Bashi-bazouk turned upside down.



Reed Warbler.

The object of the pairing of birds, their courtship, the construction of their nests, their mutual labours, the care they show, and the great interest they seem to take in each other's welfare, is no doubt that birds may have the pleasure of companionship with those of their own kind, and that they may perpetuate those family ties which help to bind bird-parents and their offspring closely together in tender sympathy and sincere affection one for the other.

Love and solicitude concerning everything relating to bird life, its duties and interests, are shown by birds in many curious, novel, and remarkable ways. The female, after she has built her nest, and made its inside cosy and warm with wool, feathers, or other soft materials, has been known to cover the outside with the same kind of moss found on the branches of the tree or bush she has selected for her home, so that it may not be easily discovered, nor she or her mate disturbed in their sylvan retreat. This is particularly the case with those birds who build their nests in lichen trees.

During the time of incubation, whenever the female bird leaves her nest, she does so very quietly; and if she has reason to believe she is watched, she will not return to her nest. While sitting on her eggs, she never attempts to chirp, twitter, or sing. What is it makes the bird sit on her eggs hour after hour, and endure this apparently monotonous and wearying existence during so many long days and nights, without leaving her nest, save but for a few moments now and then?

It is because she is impelled by a mother's love, and is taught by instinct that those bird germs in her eggs need continual warmth to nourish them into life.

The males of some kinds of birds, we believe, occasionally take part in this maternal duty of sitting upon the eggs. But their principal work is to provide food for their feathered mates, as well as for themselves, which keeps them actively engaged all the day. They have not much idle time to waste. When they are not looking for worms, insects, berries, seeds, or whatever they may feed upon, they are twittering, chattering, or singing on some branches not far off. And what for? Why, to cheer their bird-loves, and to assure them they are keeping watch, as faithful guardians, over them in their leafy solitude.

This is particularly the case with the blackbird, who is generally up with the morning sun, working away to find some nourishing morsels for his mate on her nest, and then, when he has supplied her with her morning meal, perches on some tree hard by, and pours out the sweetest music that ever hushed a bird to rest; a reassuring, soothing, tranquillizing song of genuine bird-affection.

'What loving warbling birds sing in the pairing season, and what soothing chords of lullaby are addressed by the mother-nurse to her young ones, while her partner is looking after food for them, to develop them into a new choir of feathered choristers!'

Of whatever kind birds may be, and wherever they may build their nests, be it on a rock, in a tree, hedge, or bush, or even a hole in a bank, in a hayrick, under the eaves of dwelling-houses, or amongst the ivy that mantles our cottages, these spots, during the breeding-season, are sacred to them, because there centre their little joys and what is to them all the wealth and pleasure of life.

Considering the time and labour these nests have cost to build, and the wonderful ingenuity displayed in their structure, and that they are the real and lawful chartered right of their bird-builders, it seems that the wanton destruction of them is an act that should not only be stigmatized as needless, but as being mean, wicked, thoughtless, cowardly, and cruel, a downright impudent robbery; and as much an act of burglary as was ever committed by the most notorious housebreaker.

For several reasons we must condemn the practice, common amongst boys, of taking birds' nests when they contain eggs or young ones, because an indulgence in it may lead to the self-appropriation of other things to which a boy has no right; therefore it constitutes a dangerous precedent, which may result in trouble.

We hope our boy readers will remember that, simple as a bird's nest may be, it would require a long time, much study and perseverance, close application, and great mechanical knowledge on their part to make a nest as neat and as beautiful as a long-tailed titmouse or any other bird can make theirs. If the most clever boy that could be found had a whole year given to him, and he were furnished with proper materials and tools for that purpose, we question if he would be able to accomplish the task. Take the materials of a sparrow's nest to a great philosopher and ask him to put them together as well as the sparrow could; he would shrink from the attempt.

Nature is a large book, with many leaves, and splendidly illustrated. Many useful lessons may be learnt therefrom, but none more so than those which are taught by the life and habits of birds; these little airy miracles flitting hither and thither, and bubbling up everywhere, singing, twittering, working, and helping to fill the world with life and beauty.

'*Now*, go and lie beneath the tree
Where glance the sunbeams through;
Give to the birds a loving call,
And talk to them—or, best of all,
Let the birds talk to you.

'Draw near to them, and they will be
Companions glad and gay;
Dear readers, life is sometimes dark,
The birds may light a tiny spark
To cheer you on your way.'



CHAPTER XI.

BIRD SINGERS IN NATURE'S TEMPLE.

HE beauty of our Liturgy, and the earnest, eloquent pleadings of our divines, add considerably to the pleasure and profit of religious worship, but are they not made much greater and more effective both by vocal and instrumental music—by the soft, melodious, and varied tones of the human voice, and by the inspiring strains of the organ and other musical instruments? No one, we think, will deny this.

Nature's great cathedral is very grand, imposing, and beautiful, with its rich and charming ornamentations of corn, fruit, and flowers, and with its carpet of green, with rivers and streams winding through it like cords of silver, and with its arched roof of blue and gold—but what would it be without its feathered choristers? It would certainly lack the life and interest it now possesses.

Birds are our musical entertainers at all seasons, especially in the young springtime, when Nature has awoke from her winter sleep, and is putting on her robes of many-coloured flowers; and even when she is crowning our fields and orchards with golden grain and luscious fruit. What a treat it is at this time to walk through Nature's temple, to gaze upon what we have described, and without fee to pay to have the music of a chorus of birds to add to our pleasure! In the bright plumage of some birds we see the beauty of Nature; in the songs of others we hear the music of Creation, and such music as almost fills the soul with divine inspiration.

As in the faculty of constructiveness and ingenuity man is superior to the lower animals—that is, in his being able to show it in a greater diversity of ways, and to apply it to a

much larger number of different kinds of materials than they are able to do—he may also surpass birds in the variety of his acquirements in vocal music, but scarcely in sweetness of voice. It is questionable whether the most clever man can do any one thing, of the many he can do, better or more perfectly than a bird can perform its little duties of nest-building, rearing its young brood, or singing its melodious song.

Let us, however, note the difference in the circumstances connected with the musical abilities and acquirements of human and bird singers. What mean our Academies of Music, the Tonic-solfa method of teaching singing, and those musical scales of which we hear so much? They simply mean that knowledge has been imparted and efficiency in music acquired by instruction given. Thus we say that 'a great star' in the musical and singing profession was a pupil of some very talented and popular teacher.

Birds, however, so far as we are aware, have no advantages of this kind. We know of no arrangement among them to study B flat or variations in double, double C.

Bingley, a writer on natural history, says 'that song is no more innate in birds than language is in man, and that they must not only have instructors, but that they adhere through life to that which they first learnt.' He says, 'Three nestling linnets were educated, one under a skylark, another under a woodlark, and the third under a titlark; and instead of the song peculiar to their own species, they adhered entirely to that of their respective instructors.'

Though we may admit the truth of part of the above statements, it must not be forgotten that the young of different kinds of singing-birds may be constantly hearing the notes of other birds not of their own kind, yet they do not adopt their style of song, but give forth the same notes, and in the same manner, as their own predecessors had always been wont to do. Hence it is that those who study the songs and warblings of our wild woodland choristers know each singer by its peculiar notes. Song-birds may imitate one another to some extent, but, as in nest-building, so in singing, each kind of bird adheres to its own style.

That there is an absolute necessity for those birds who are physically organized for singing to listen to other birds, by

whose notes their powers of song must be developed and cultivated, admits of some doubt. We believe that instances have been known of fledglings being taken from the nests of wild birds, put into a cage, carefully nourished, and in due time to break out in full song, without having heard a note from a bird of their own kind, or from any other. The young of singing-birds are no doubt considerably assisted in their early efforts to sing by listening to the songs of the parent-birds; nevertheless, we think they are able, without instruction, instinctively and intuitively to give sweet music, which may come like tones of tiny silver bells from the pulsings of their own little instrumental throats.

According to a table arranged by Bingley, the following seems to be the comparative merits of our singing-birds in reference to mellowness of tone, sprightliness, plaintiveness, compass, and execution: 'The nightingale stands first, and then follow in order the linnet, blackcap, skylark, titlark, woodlark, robin, goldfinch, chaffinch, greenfinch, thrush, wren, siskin, redpole, and blackbird.' The redwing, garden warbler, whitethroat, and cuckoo, are also sweet singers.


Wren.

Nature appears to be very just and generous in the distribution of her varied powers and endowments even amongst birds. The law of compensation is in everything strictly carried out. Whatever strength, size, endurance of flight, symmetry of form, and beautiful plumage some birds may be furnished with, they may be altogether destitute of those qualifications which render the less pretending and smaller kinds of birds attractive and lovable.

The eagle, soaring on high, may, in the full glare of the sun, poise for some time on his powerful wings; but he sings no song to celebrate the praises of Him who spread out the wide expanse of the heavens, and who covers the earth with verdure and beauty. The bird of paradise, perhaps the most

beautiful of all birds, not only in plumage but in the long and graceful feathers of its tail, has no gift of song.

The feathers on the head and neck of the peacock are exceedingly handsome; and when his covert feathers are spread out in the sunlight the brilliant colours which adorn them are almost dazzling to the sight. There is much majesty, grace, and beauty in this bird, but his singing qualifications are *nil.* His unearthly scream is enough to frighten a poor hypochondriac into some other, and far worse, condition of mind and body than he was in before.

Not long since a countryman was passing down a lane in Gloucestershire, when he was suddenly startled by the shrill, unpleasant cry of a peacock who happened to be standing near him, and showing off, with some degree of vanity, his fine feathers. 'Ah,' said the man, eyeing him very intently, 'thee hast the appearance of an angel, but the voice of a fiend.'

When but a youth, we visited a friend at a farm-house. Our bedroom was next to the roof. On the first morning we slept there, just as the faint streaks of light were defining the outlines of surrounding objects, we were suddenly awoke out of a sweet slumber by what sounded like a screech or a yell, repeated two or three times. Only half awake, and having no knowledge what the occupants of the farm consisted of, we were totally at a loss to know what the strange noise proceeded from. In this painful state of uncertainty, somewhat tinged with a kind of awe and superstitious feeling that the old farm-house harboured other occupants more etherealized than those who were human, we remained until the time to get up. Was it a ghost or some spirit in unrest? were questions we asked ourselves many times over, but failed to solve the problem. It was a relief, after relating the little episode to 'mine host' and his wife, to learn that the noise we heard was the morning call of the peacock, which he generally gave perched on the roof, just over the room in which we slept. If we were not charmed with the voice of that fine-feathered bird, our mind was relieved that we had not, after all, been disturbed by an unearthly visitor.

With very few exceptions, all birds of varied and beautiful plumage are poor in song, or do not sing at all; while, on the other hand, our sweetest song-birds are mostly of unpre-

tending colours, and small in size; whose homes are not on high, but in lowly places.

Although the plumage of English song-birds may not be so brilliant as that of many foreign birds who cannot sing, yet some of them are clothed in a great variety of colours, such as grey, brown, speckled, black, red, yellow, or golden. Some of them wear a little red cap, putting one in mind of the Turkish fez worn in Constantinople. Others wear black ones, reminding us of aged philosophers, who, having lost their hair, put on black velvet caps to prevent them from catching cold. The little nightingale and his wife have each a dress of russet-brown.

The blackbird's coat is in colour like those worn by men who sing at our concerts and operas, quite in accordance with fashion, and in harmony with his fine musical abilities, excepting that instead of the white cravat round his throat his beak is marked with vermilion lines and his eyes have a circle of red and golden colour. We may say that as a singer his personal appearance is charming, and his dress 'neat but not gaudy.'



Robin.

The robin, like a footman in livery, shows a red waistcoat, and his coat of brownish grey has, towards his neck, a collar of pale-blue feathers.

We will now introduce, as being very appropriate, some verses written by the Rev. R. Wilton, and entitled—

THE SMALL BIRDS' APPEAL.

'All day we flit across your view,
Brown, black, or crimson breasted;
Yellow, or blue, or speckled hue,
Purple or golden crested.

We do our best to please your eye,
With colours brightly blending,
With fairy motion gliding by,
Or angel-like ascending.

All day we strive to charm your ear
With concert of sweet singing;
And even when the stars appear
We keep the copses ringing.

At times we waken in your heart
A thrill of soft emotion;
And into world-worn spirits dart
An impulse of devotion.'

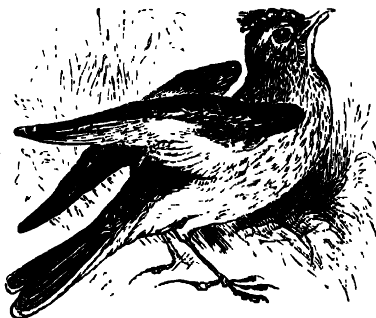
Even as singers birds have their uses. The traveller plodding his weary way, the toilers in the fields, and those who may ramble through woods or lanes at morning, noon, or at the decline of day, may hear these little choristers in the temple of Nature, pouring out volumes of the rarest music—

In sweet songs, almost divine,
Telling man that truth and goodness
Nature's precious gems entwine.

We shall now give special attention to four or five different kinds of English singing-birds.

SKYLARK.

This is a very small bird, and its coat is brown in various shades. It however stands high in the list of our best bird singers, and we may venture to say is an universal favourite wherever its song is heard. Its name awakens many pleasant memories of the cheery days of boyhood, of Nature in her loveliest garb, and of bright blue skies. We can scarcely imagine anything to be more charming or tranquillizing to the human mind and heart than a walk down a quiet country lane in the early morning time, when the sun is spreading his wings of light over mountains, across valleys, and fields fresh and beautiful with dew and wild-flowers; when birds begin to twitter and insects to hum; all having just awoke from a short slumber into new life.



Skylark.

In such a stroll the ear, it may be, is greeted with notes of the sweetest music. But who is the singer? We look, and a little body, bathed in golden sunshine, is seen above the trees gradually ascending higher and higher, singing all the while, until it appears no more than a tiny speck, only just discernible, against the bright blue heavens. This is the skylark, who, having left its mate and nest of young ones, and shaken the dew from its light wing, is mounting upward carolling its matin of praise to Almighty God, and singing a welcome to the morning light. Well may the Ettrick Shepherd say of this bird:

'Sweet be thy matin o'er moorland and lea.'

But where does the lark build its nest? Not where the eagle does, on the summit of a rock; nor on the top of a tree like the rook; nor in the middle of a bush or hedge, but in a hole made by the foot of a cow or a horse, or it may be between two clods of earth in a field. It has of all our birds the humblest of homes, situated in the lowliest of all places, and yet it is—

'The bird that sings at heaven's gate.'

What a contrast, and what a lesson of encouragement it is to the afflicted, the tempest-tossed, and poverty-stricken of human kind. Even from their humble abodes, perhaps containing but scant convenience and comfort of earthly things, their affections from thence may rise to heaven's gate, and even beyond, and their hymns of praise may ascend to God as an acceptable sacrifice.

It has been justly observed, that 'of all captive birds, none are more cruelly tortured than larks. The desire of this bird is to soar, and when seized with the impulse of song, he flings himself upwards, and is dashed down again by his prison-bars. In the freedom of nature he is the minstrel of liberty and love, carrying upwards, and sending down from above, his buoyant song, which seems to fall through the golden sunshine like a flood of sparkling melody.'

People cry shame on the epicure Lucullus dining on a stew of nightingales' tongues nearly two thousand years ago; but what are we to say of those who devour these lovely songsters, which are 'God's great gifts to gladden and beautify the earth'? People who eat larks simply swallow Nature's own-

made musical instruments, and deprive the world of volumes of the richest music that ever bird on the wing could give.

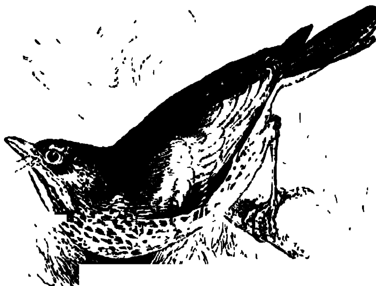
Who can read the Ettrick Shepherd's beautiful lines on the skylark and not be in love with it, and feel it to be a sin to deprive it of life and song, for the sake of eating its little body? The poet says:

'Wild is thy lay and loud,
Far in the downy cloud;
Love gives it energy, love gave it birth.
Where on the dewy wing
Art thou journeying?
Thy lay is in heaven, thy love is on earth.

O'er fell and mountain sheen,
O'er moor and mountain green,
O'er the red streamer that heralds the day;
Over the cloudlet dim,
Over the rainbow's rim,
Musical cherub, hie, hie thee away.'

THRUSH.

The song of the thrush is remarkable for its rich mellow intonation, and for the great variety of its notes, and is preferred by many to the songs of all other woodland singers. Whether he is the best singer or not, he occupies, and deservedly so, a very high rank in the bird-singing profession. This would appear to be so from the fact that very large numbers of this bird may be heard and seen singing out their mellow songs in almost every street in large towns, as well as in the cottages of our villages and hamlets.



Song Thrush.

In listening to the notes of some birds, and taking particular notice of their intonation, you may fancy they utter distinctly, not only words, but sometimes short sentences; for instance, the thrush seems to say when he sings:

'Knee-deep, knee-deep, knee-deep;
Cherry-du, cherry-du, cherry du, cherry-du;
White-hat, white-hat, white-hat;
Pretty-Joey, pretty-Joey, pretty-Joe.'

Although the sweet song of this bird, as we may often hear it poured forth from some small cage, in London or elsewhere, may bring to our minds the scenes of country life—the old cottage at home; the mill by the stream; the ivy-mantled tower of the village church, and the sheltering woods with which some of us were familiar in childhood—yet we cannot help thinking that this fine singer would be far happier, and sing much sweeter in the freedom of its native woods and fields than it can possibly do 'cribbed, cabin'd, and confin'd,' as it often is, in a cage of narrow and cruel dimensions.

We are by no means favourable to confining birds of any kind, particularly those of our own fields, woods, and orchards, in cages, however large they may be; but we must condemn the too common practice of putting them in cages so small that the tails of the little prisoners sweep their sides at every movement. This is cruelty of a very reprehensible kind. Confine a human being, or an animal large or small, whose powers of locomotion are intended for the ground only, in a space so contracted in dimensions as to prevent them from walking or having the free use of their limbs, and the physical consequences will be of a most painful kind, to say nothing of the baneful effect it must produce on the brain of each. Their very look seems to say, 'Give us more light, and more liberty, or die we must in this state of close imprisonment, which is little better than lingering death.'

But for birds, who are not only in nature free to walk and find their food on earth, but are organized to cleave the atmosphere, and on light and airy wings to enjoy unlimited space and freedom, to be confined in wire prisons in which they cannot stretch a wing, see a green leaf, and hardly the light of the sun, is much more painful, wicked, and cruel.

Of those who are determined to sacrifice the liberty of the thrush and other singing-birds to their own fancy and pleasure, we ask for them one favour. Let them out of their cages at least once or twice every day, that they may fly across and about your room, which, if it does not make them as happy

as they would be in nature's freedom, will considerably help to soften the miseries of their incarceration.

Some may say, that after a time birds have become accustomed to their cages, have sung cheerily, and often lived a long time. This may be true; and many a man has survived for years in prison and then died; but there is no proof that in either case they were as contented and happy as they would have been in a state of freedom amongst those of their own kind.

BLACKBIRD.

As before noticed, this English bird is another popular singer. His dark plumage is agreeably relieved by the bright colours of his bill and feet, and the orange tint round his clear, beautiful eyes. Although his notes are solemn and flowing, he may be called one of the stars of the bird-world. Some maintain that he sings as if delivering an eloquent rhythmical oration.



Blackbird.

He begins to sing early in the year, and is always up betimes looking for his morning meal, and for that of his mate, especially during the time of incubation. He is then particularly active and solicitous about her and her necessities, as if he knew that the eggs on which she is sitting contain his future offspring, and that they can be brought into life only by the nourishing warmth of her own body.

His duty as purveyor to his little black queen being over, he perches himself on a bough near the nest, and then sings, as if to cheer her as she sits hour after hour and day after day quietly and gradually performing the maternal duty devolving upon her.

Many birds sing the most when the weather is warm and sunny, but the blackbird sings when the rain falls, when the lightning flashes and the thunder rolls, and the angry storm

sweeps across the landscape; and he constantly helps the thrush and other song-birds to make our fields, groves, and woods echo and re-echo with these sweet warblings which birds only are able to give.

NIGHTINGALE.

This bird is an annual visitor to this country, the male bird usually coming about the third or fourth of April, and the female ten or twelve days later. Its name is derived from two Saxon words, *nacht*, 'night,' and *galan*, 'to sing.'


Nightingale.

Although nightingales are found in the temperate parts of Russia and Sweden, as well as in Yorkshire, Gloucestershire, Essex, Suffolk, Kent, and Surrey, they seem to have an objection to Devonshire, Cornwall, Ireland, and Scotland.

In the Turkish cemeteries these birds abound, it having long been a custom of love to keep these birds on every grave. There is nothing in the personal appearance of the male bird to recommend him to the notice of the female. He must, as before intimated, woo and win purely on the merit of his own song; he must not only emulate a rival, but try to excel him.

Pliny speaks highly of this bird's gift of song. He says: 'The note at one time is drawn out with a long breath, now stealing off into a different cadence, now interrupted by a break, then changing into a new note by an unexpected transition, now seeming to renew the same strain, then deceiving expectation. It sometimes seems to murmur within itself—full, deep, sharp, swift, drawling, trembling; now at the top, the middle, and the bottom of the scale. In short, in that little bill seems to reside all the melody which man has vainly laboured to bring from a variety of musical instruments.'

Milton makes the nightingale sing the nuptial song of our first parents in Paradise.

Even to those who live in rural districts, and are accustomed to the song of this bird, there is something in its notes that always seems to charm and to please them; but to those who live in large towns and seldom visit the country, how delightful and inspiring to them are the notes of our wild songsters, particularly those of the nightingale. Take, for instance, a man tired and worn with work and care, sitting under the spreading shade of some fine old tree on a summer evening. And suppose also that the sun is sinking in the far west, and throwing red and golden tints athwart the undulating landscape, and that all busy life seems to be hushing itself into a calm slumber; when, to the ear of such an one softly comes, borne on zephyr wings, the sweet melodious notes of that almost divine singer, the nightingale. What would be the effect? What thoughts would such music beget? And to what would the mind be directed? Surely the effect would be a soothing one, and the thoughts would be of the wonderful goodness of God in providing such music for men on earth; and the mind would be directed to that still sweeter music He has provided for the sainted ones in heaven.

We were, a few years since, delivering a lecture in a village in Suffolk on birds and bird-life, and just as we came to that part which referred to the habits and song of the nightingale, a lady opened the door to come into the room. At that moment a nightingale was pouring out its full song in a copse close by. The soft swelling notes of the singer swept through the room, every ear was arrested, and the effect on all present was almost magical. No lecture could ever be illustrated with anything more appropriate or effective than was ours on that occasion. It was a pleasing, living, and practical illustration, which we think can hardly be excelled.

CANARY.

Although the canary is not a native of this country, it is one of the most common of our singing cage-birds, and therefore deserves a little notice. 'If the nightingale is the chantress of the woods, the canary is the musician of the chamber.' It has a good ear, great powers of imitation, and a capital memory. We have heard of a canary kept in a counting-

house in Cheapside, that can imitate the sound of counting gold, silver, and coppers so perfectly, as to deceive those who are not aware of this acquirement.

We were one summer evening sitting in the open doorway of a house by the Severn river, in conversation with a friend, when to our surprise we heard distinctly a noise, as we thought, proceeding from a cricket. We, however, learnt it was not so, but that it was made by a canary in a cage close



Canary and Nest.

by. We were then informed that some time before a cricket had paid them a visit for a night or two only, and then either died or left the place, as they never heard it afterwards. The canary had proved itself an apt pupil, for it had caught, and could imitate, the sound of the cricket so correctly, that a stranger could not tell the difference between the two.

Canaries have been taught to perform many amusing tricks, such as turning a wheel to draw up a miniature bucket from the bottom of the cage, carrying a musket and even firing it off; allowing themselves to be harnessed like horses, and drawing a tiny carriage with another bird in it acting as coachman, and they have been taught to feign death. While

we hope all this is effected by kindness, we fear that, preparatory to all these performances, the little creatures are subjected to severe discipline, if not to cruel treatment. It is certainly not the vocation of birds either to draw like horses or to shoot like soldiers.

Canaries, like other birds, are susceptible of kindness, and often become much attached to their owners and to those who in any way may notice them. We know of a canary who showed its affection for those to whom it belonged in a very eminent degree. The footstep of the head of that family was always recognised by the bird, who never forgot to give him a note, or peculiar chirp, of welcome. To this he always expected a response or acknowledgment by being called 'Pretty Dickey!' or by the use of some other endearing term, uttered in a reassuring and affectionate manner. He was very familiar and amusing, so much so that he endeared himself to every one of the household. He was allowed to fly about the room very often, and, when tired, he would return to his cage of his own free will. So far, everything was made as pleasant as possible to little 'Dick's' life.

One day the family were out, but on their return did not receive the usual note of welcome. The bird was nowhere to be seen until the cage was reached, at the bottom of which was poor 'Dick;' his song was hushed; for he was dead, stiff, and cold. Then the question was asked, Whither has his little spark of life gone? What of the impulse that prompted his song, and the intellect that directed it? And what of his emotions, his will, love, and affection? Is there in birds an animating principle similar to that which constitutes man a being destined to live hereafter? These are questions which future studies and an extended knowledge of the animal creation may help to answer.

It is almost needless to say that the death of this simple bird brought a sadness, for a time, over those who had owned and loved him so well. As a last but affectionate tribute to poor little 'Dick,' Leighton's very beautiful lines were repeated over him:

'Thy breast was filled with fairy shells
  That gave sweet echo to thy note,
And tones of tiny silver bells
  Came from the pulsings of thy throat.

Song through all thy restless frame,
Thy very limbs were warbling strings;
I well believe that music came
E'en from the tippings of thy wings.'

Although caged canaries have been known to live ten, and even thirteen, years, the majority of them do not live half as long. As they are such favourites, and their numbers so great, deaths are frequently occurring amongst them, which probably in many, if not in all cases, are as much regretted as was the death of little 'Dick' in the story related.

Some birds have a very high estimate of their own powers of song, and are often jealous of rivals. A gentleman had a skylark, and to test its powers of song purchased a mocking-bird. The skylark sang as those birds only can. The mocking-bird listened attentively, and then in its turn began to sing. It did so, so clearly, loud, and sweetly, that the lark was never known to utter a joyous note afterwards.

Many birds possess great powers of imitation. The jay can imitate the bleating of a lamb, the mewing of a cat, the note of a hawk, the hooting of an owl, and the neighing of a horse. Parrots are wonderfully gifted in imitating sounds, picking up words and short sentences, which they often repeat very distinctly.

If, as we have already shown, birds are so wonderfully organized, so useful in what they do, so ingenious in nest-building, and so sweet in song, thereby adding much to the life, beauty, and attractions of nature, is it not an individual and national duty to protect them?

It is much to be regretted that the exterminating proclivities of man have deprived us of many birds which formerly existed in this country. The bustard no longer stalks over our downs, and the noble eagle is but seldom seen. The hoarse croak of the raven is now rarely heard. The owl and the bittern, once so common, are now, when seen, regarded as objects of the greatest curiosity; and if the work of the trapper had not been interfered with, and a check put upon men and boys who used to shoot small birds for mere sport, whole breeds of our insectivorous and song birds would ere now have disappeared from our landscapes.

Farmers, gardeners, and floriculturists are much indebted to the 'Royal Society for the Prevention of Cruelty to Animals,'

for securing legal protection for all wild birds during the close season, which gives us some hope of preserving and increasing the numbers of these useful creatures.

In the interest of our feathered friends, we will address

A FEW WORDS TO OUR BOYS.

Boys should never throw stones at birds. It is a cruel act, very offensive to their Creator, and helps to destroy every generous and humane feeling a boy may possess. What would a youth think of a strong man, who, taking advantage of his inferior strength, were to pelt him with stones, by which he might knock out one of his eyes, disfigure his face, and break one or more of his limbs, or so injure him that his life would always be one of suffering? He would say, 'Such conduct was unmanly and cowardly,' and he would be quite right in saying so.

Boys, then, should remember that small birds are defenceless, and that it would be very mean to injure them. They not only do no harm, but work for our benefit; and do their best to cheer us with their songs. If a boy is wronged, or injured by others, there is some redress in law for him, but if by throwing stones at birds he deprives them of sight, breaks a leg, or maims a wing, they have no such means of redress as he has, but must suffer in silent misery, and linger on in pain, until they die, it may be, of starvation. And what good would all this do a boy? Not any; but his conscience would be stained with the guilt of a foul deed. He may think he will never be punished; but he must not forget that an Eye above has seen his cruelty, and that swift-winged Justice may at last overtake him.

We have read of a boy who once took delight in putting out the eyes of poor birds, and then letting them fly. When he grew up to be a man, he married, and had two daughters born to him stone-blind. They never saw the faces of their parents or friends, nor the sun, nor a flower, nor a tree, nor a field, nor the sea, nor a cloud, and never the moon or stars. They lived seventy years in darkness, and had to be supported by charity. What a fearful fate was theirs!

Bird-catching in traps made of three or four bricks is, we fear, common amongst boys. It is a practice equally cruel as that of throwing stones at them, because the birds are

hardly ever properly caught, but are injured in their legs and wings, and often half crushed by the falling brick. In this state the poor little imprisoned creatures have to linger in pain until school-time is over before they are liberated. And then only to be put to death. This cruelty is made all the baser by the spreading of a few crumbs of bread, or grains of corn, round about and in the trap, to tempt the birds, and to lure them to destruction.

We hope the boys who read this will heed well the following lines:

'Don't kill the birds, the happy birds, that bless the fields and grove,
So innocent to look upon, they claim our warmest love;
The happy birds, the tuneful birds, how pleasant 'tis to see,
No spot can be a cheerless place where'er their presence be.'

BIRD CATCHERS.

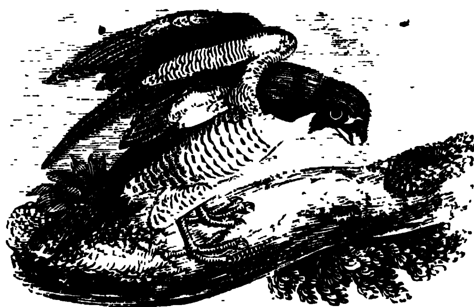
Before the law for protecting birds during the breeding season was passed, much cruelty was inflicted upon them by bird-catchers, who, in plying their avocations, would often secure not only male, but female birds, probably engaged in collecting food for their nestlings, in some cases nearly fledged, but not strong enough to fly, or to look for their own food. Not only have the parent birds been caught by hundreds, but nearly the whole of them, after a few days, or at most three or four weeks, have died; and there is no doubt that many times the number of young ones have died also, for want of the mother bird's attention and proper sustenance. We cannot help regarding the work of the trapper and snarer, and the use of the gun in capturing and destroying birds during the close season, as cruelty intensified.

That the young of some birds can be fed by the mother only, will be seen in the following circumstances related to us by a Yorkshire farmer.

One day when he was out with his dogs and gun, he saw flying nearly overhead, and at no great distance, a good-sized bird, which he fired at and brought to the ground. It was a female sparrow-hawk. Two or three days afterwards, when taking the same round, he saw a similar bird on the wing, but at so great a distance from him that he did not attempt to shoot it. He watched it until it disappeared. He then walked on, and, in passing through the wood,

heard some very faint noises proceeding from a tree close by. In it was a nest, up to which he climbed, and there, to his grief, he saw two or three half-fledged sparrow-hawks with open mouths waiting to be fed. Although there was plenty of food, consisting of mice, small frogs, etc., all round the edge of the nest, the birds were almost half dead, and, we may say, literally starving in the midst of plenty.

The food referred to had no doubt been taken there by the male bird, seen by the farmer on the second day. But that was all he was able to do, as he evidently did not know how to prepare the food for the young, or in what way to give it to them. This, it would appear, is known to the mother bird only. The male finds and carries the food to the nest, the female cuts and divides it into such morsels as are suitable to the requirements of her offspring. Our informant said he had no doubt that the bird he had shot but a few days before was the mother of the sparrow-hawk nestlings he found in a starving condition in the nest referred to.



Sparrow-hawk.

He saw at once that if left there they would die a lingering death, and as they were too young and weak for him to attempt to rear at home he despatched them in the most merciful manner he could, and saved them from further needless suffering.

This act and its consequences taught the farmer a salutary lesson. He has since then abstained from shooting, as he said, 'when birds are breeding;' and he is now well known as a most humane man, and a great friend of animals.

There are many reasons why we should value and protect our birds. A gentleman of Notting Hill told the writer that a friend of his was some time since crossing the sea in a pas-

senger ship. One morning, when a very long way from the land, a sea-bird of some kind flew very near to the ship, and after describing a circle came a second time still nearer. The third time the bird came it touched the captain's shoulder, and then flew forward and took a direct course before the ship.

The captain was so impressed with this incident, that he ordered the man at the wheel to steer as nearly as he could in the direction the bird had taken. In about two hours they espied a dark speck upon the waters, which they found to be a small boat drifting about, and containing two men in a state of great exhaustion. They were taken on board, kindly treated, and soon recovered strength enough to relate the circumstances connected with the perilous condition in which they were found. It appeared that some accident had happened to their ship, and to save their lives these men had taken to one of the boats, and were picked up as we have narrated. This sea-bird was the agent, in the hands of Providence, of saving the two poor fellows from a watery grave.

Birds, as we have shown, have great intelligence, which they exhibit in a variety of ways. They have also strong affection, and can feel, in a considerable degree, the emotions of joy and sorrow, of pleasure and pain, and in a domestic state, or when confined in cages, readily show their preference for those who treat them gently and kindly.

It is affirmed by Lucretius that the liquid voice of birds gave men their first lessons in vocal music.

Having already pointed out the uses of birds in the economy of nature, we need not again refer to them, only to express an earnest hope that in the interest of human beings and every form of animal life, as well as in that of the produce and beauty of nature generally, and for the sake of the life which birds give to the world, men will abstain from the needless destruction of our small, but hard-working feathered labourers. Let the deadly gun, the poisoned grain, and the net do their work in banishing our birds from our fields, woods, and glens, so that we have no more of their services and their songs, then the pervading silence will seem to be the dirge of Nature's desolation, and almost of her death. We say then,

do not wantonly destroy the birds; and we conclude this chapter by asking our readers to

LISTEN TO THE BIRDS,

who are supposed to say in pleading for themselves, 'Look at our structure, our form, our light covering of feathers; consider our powers of flight; our uses in nature in the work we do. Do not forget that we have intelligence and affection, and that we are willing to give you our services for a very little return, and to fill your homesteads, your gardens, fields, trees, hedgerows, woods, and groves with our best and sweetest warblings. Turn your thoughts to Him who made both you and us, and as you look upon us say—

'"These are Thy glorious works,
Parent of good, and these declare
Thy goodness beyond thought and power divine."'

The members of 'Bands of Mercy,' and our young friends generally, may fancy the birds have sent them a petition to spare their lives; not to rob, or to pull down their nests—not to torture them in any way; and that they promise to do what they can for their benefit in return for kind treatment.

The rook says, 'I'll eat the grubs and save your corn.' The sparrow chimes in, 'I'll eat the caterpillars and save your cabbages, and the leaves of your beautiful trees.'

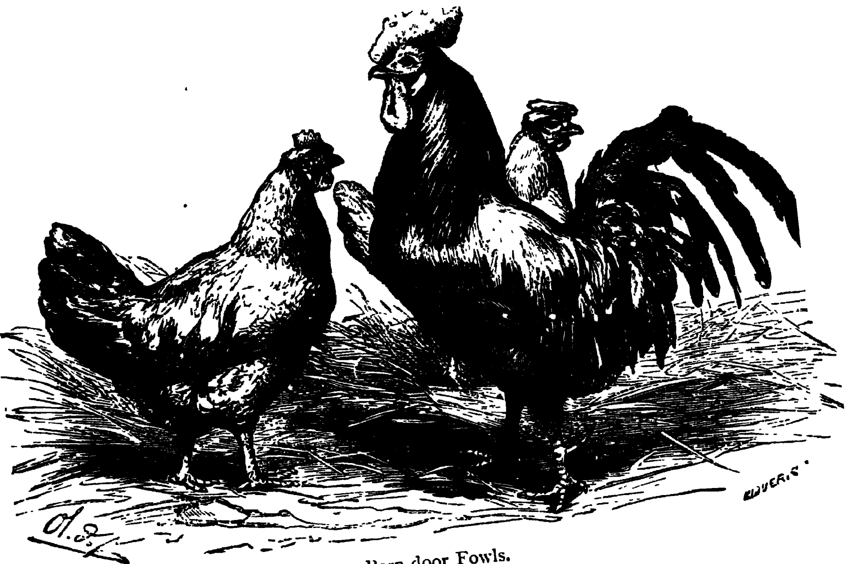
The thrush and the blackbird promise to eat the snails and slugs to save your strawberries.

The goldfinch and the chaffinch say, 'We will eat the seeds of the thistle—the plant that impoverishes your land, and starves your other crops.'

The tomtit says, 'I'll eat the insects that destroy the buds, and thus save your pears, apples, and cherries.'

The long-tailed titmouse declares it will keep guard over your gooseberry-bushes, and clear them of those insects which would devour the green leaves and destroy the fruit.

And then a chorus of birds, with the nightingale as their leader, offer their services and say, 'We'll sing to you, and we'll all work and sing to make your lives happy, and to fill your mountains and vales, your fields and your woods, with the music of love.'



Barn-door Fowls.



CHAPTER XII.

CHANTICLEER AND HIS FAMILY.



THE title of this chapter may sound somewhat odd, and may be very suggestive of celebrated public singers and performers. We are, however, going to refer not to human bipeds but to feathered ones, whose performances, if not so popular as those referred to, are nevertheless both interesting and useful.

Let us suppose, then, it is a morning in early summer. The sun is up; all nature is alive; the fields are clothed in green; birds sing their matins of praise to God; the air is balmy, soft, and invigorating; we find ourselves strolling down a narrow lane, and in the distance see a village with a few clusters of cottages, and the landscape dotted here and there with farmsteads. So far as human beings are concerned, these places seem to be locked up in silence and almost entirely deserted. It is hay harvest, and all hands have turned out to 'make hay while the sun shines,' or to perform other duties not less important.

On getting a little nearer, we discover groups of our 'feathered friends' very busy in searching for the much-needed grain, while bold chanticleer acts in the two-fold capacity of provider and body-guard to his much-loved fowl family—the domestic hens and their young broods. There is so much that is interesting, beautiful, and mysterious in the study of our 'feathered tribes,' that we may ask:

> 'What is this mighty breath, ye sages say,
> That, in a powerful language, felt, not heard,
> Instructs the fowls of heaven?'

We have now reached one of our farmsteads, and our ears are greeted with a tremendous cackling of one or more of the

hens—a noise by no means an inspiring one, nor yet that kind of 'music which hath charms to soothe the savage breast.' It is nevertheless a proclamation of duty performed, and of health and prosperity—more eggs have been added to the nest, in which germs of future life have been deposited.

Speaking of chanticleer and his family in general terms, we may notice that the numerous varieties of the 'fowl family' are represented in our own country.

The black bantam is supposed to resemble the Banksia Jungle fowl of Java, and the Dorking fowl comes from Poland. The Hamburg fowls include the pencilled, the speckled, and the black Hamburg. In addition to these, we have the black Spanish and spangled Polands—the Sultans and Cochin China fowls. All these present diversities of size, colour, and utility, but at the same time may claim a near relationship one to the other.

It is, however, the structure, habits, and utility of our common barn or farmyard fowls which will have our attention.

Eggs and Incubation.

Whatever may be the component parts of the shell of the egg, it is well known that it contains a large percentage of lime, which, being thoroughly hardened, and the shell being of the structure it is, renders it extremely strong, and a very safe protection for the embryo life it contains. Boys have often placed the ends of an egg in the palms of their hands, and then putting them between their knees, have tried with all the force they could command to break the egg; but we never saw one succeed in doing so. 'But, strong as it is, it is permeable to air, which is necessary to the life within it. At one end of the egg there is a little sack filled with air containing an unusual proportion of oxygen, which is employed in giving vitality to the awakening germ. The shell is lined with two membranes—the one external and rough, so that it adheres to the shell; the other exceedingly smooth, so that it allows of the rotation of the contained parts.'

The process of incubation, though at one time very mysterious, is now understood by watching day by day the changes and developments which take place during the whole time of incubation. Usually at the expiry of twenty-one days from the period of 'setting,' the chicken is liberated from the

egg by the horny substance on the upper mandible not only perforating the shell but cutting the inner membrane, which otherwise would still keep the chick a prisoner although the shell was broken. The young of birds who build their nests in trees are naked when hatched, and have to be fed by the parents until they are sufficiently fledged to take wing and to seek their own food. The progeny of the barn-fowl are covered with down, and some of them look like little balls of gold moving on legs. As soon as they are hatched they begin to work in picking up food, and, being brought into life on the ground, run no risk of injuring themselves, at least not by falling from their nests.

Having introduced the chick into the world, we shall now proceed to give a more minute description of the fowl family, particularly our own familiar

Barn Fowls.

These belong to the gallinaceous tribe of the order *Rasores*, meaning to scratch or to scrape the earth in search of food. They are omnivorous, and live upon grain, seeds, and insects. Small stones and portions of shells are often found in their gizzards; these help to grind, like millstones, the hard grains on which these birds subsist. This grinding noise may be heard as distinctly as the noise of a cow's jaw when she is chewing the cud. Before the fowl swallows a stone, it ascertains whether it is sufficiently rough and angular for its purpose; if not, it rejects it; and when the stones inside are worn too smooth they get rid of them and pick up others. Fowls that are kept in houses and coops, where they cannot supply themselves with stones, usually lay eggs whose yolks are much paler than those of the eggs of fowls which roam about. Birds have no teeth, and therefore cannot masticate their food so as to make it ready to enter the stomach at once. In this we see the necessity of the gizzard, which, by its power to grind properly, prepares the food for the stomach. The gizzard in some birds is so powerful that it can grind down even glass and metals.

The introduction of barn fowls into England is involved in a little doubt. It is supposed they first came from Persia, and were known in this country before its invasion by Julius Cæsar,

because they were forbidden by the Druids to our remote forefathers, the ancient Britons. Although they are common in warm climates, they do not thrive well in extreme northern latitudes, and all attempts to rear them in Siberia have failed.

At what period of the world's history renowned Chanticleer condescended to quit his native wilds, and become *gallus domesticus*, no authority, ancient or modern, pretends to declare. It is, however, certain that hens clucked in ancient Rome, and that the crowing of the cock was familiar to the Athenians. When Themistocles, the Athenian king, went to war with the Persians, he took advantage of the fighting of two old chickens to harangue his troops with a view of inspiring them with some of the valour of the too-pugnacious bantams.

The male bird has been one of note from very remote times. The ancient Greeks practised divination through the medium of the cock bird—the process being curiously similar to that observed in the case of the modern learned pig. The letters of the alphabet were arranged in a circle; on these were placed a grain of wheat or barley; and a cock consecrated or provided for the occasion was placed within the circle. The required information was obtained by placing together those letters from which the bird had pecked grains of corn. On one occasion, however, a person inimical to priestly influence and interest officiously examined the grains, and found that those lying on the letters which were not wanted were made of wax. It is needless to add that, after this, divination—at least through the medium of cocks and grain—fell out of fashion.

Anciently a popular but cruel sport existed called

Cock-Shying.

There was a time when at fairs, etc., a real live fowl, tied by one leg to a stick, was set up as a mark for brutal bipeds to fling at with sticks and stones. It was 'a penny a shy,' and as the poor frightened chicken fluttered considerably, it was by no means an easy matter to hit it. He, however, who was able to accomplish this, and struck the bird dead, received the carcase as his reward; if he merely lamed it—broke a leg or a wing, or staved in a few ribs maybe—he received a groat. And yet we say, 'Good old times!' This cruel practice dates

its origin to the time when Britain was invaded by the Danes. The Britons made an attempt to attack their enemies in the night, hoping that by taking them by surprise they would overcome them. Their design was, however, frustrated by the crowing of cocks in the Danish camp; and it is said that because of their failure, apparently from that cause, the Britons took revenge upon the cocks, and inaugurated cock-shying.

Commercial Value.

One hen of good breed will lay from 200 to 300 eggs annually. Supposing there are only one million of egg-laying hens in England, and that each of them lays 200 eggs per year, and reckoning these eggs to be worth 1s. per dozen, their money value would be £833,333 6s. 8d. Suppose, further, that each hen has one brood of chickens in a year, and that each brood is worth 10s., we have the additional sum of £500,000. If to these amounts we add the worth of their feathers, we shall at once see that our domestic fowls are, in many senses, of great importance, and of essential service to man. There can be no doubt that, after deducting the cost of the food required for the number of fowls before given, there would be a clear profit to their owners of one million pounds sterling per annum.

There are but few articles of food that are more extensively eaten in their simple condition, or used in prepared dishes, than eggs.

Although, under ordinary circumstances, the hen is a timid bird, yet, during the time she is rearing her young ones, she will defend them at the risk of her own life.

The Hen and the Rat.

A story is told of a rat entering a poultry-house at Heworth, near Newcastle, in which was a hen with a numerous brood of chickens. The enraged mother pounced upon the intruder, and a battle ensued, from which the rat endeavoured several times to escape, but was pursued and held fast by the hen, till the noise attracted the attention of one of the family, who killed the rat with a rake. The rat had young ones, and it is supposed had before made free with some of the young poultry. Was there not some little excuse for the rat?

A Freak of Maternity.

A correspondent of the *Animal World* relates the following curious incident which occurred in a poultry-yard: 'A white hen was set in my hen-roost on twelve eggs. In due time ten healthy chicks broke their shells. Just at the time a black hen gave the usual token of her desire to perform the same feat. On the appearance of the white hen and her brood, however, Mrs. Black offered her services, and five out of the ten chicks immediately responded to her call. Mrs. Black was thereupon condemned to solitary confinement for a day or two. Poor thing, she pined away, would eat nothing, and got very ragged in her apparel. She was set at liberty. Immediately she rushed to Mrs. White and her children, and began most officiously to interfere in the maternal duties of the latter. This was at first stoutly resented by Mrs. White, but Mrs. Black had either the stronger mind or the stronger body, and she defiantly stood her ground. From that day to this, the strange sight may be seen of Mrs. White and Mrs. Black strutting together with the same family surrounding both. Whether from not having tried the preliminary experience of sitting on the eggs before they were hatched, or because her plumage was too ragged and scanty to supply shelter, I know not; but when in the hen-house at night, or during the day, the black hen has never attempted to shelter any of the chicks under her wings, but, leaving this duty entirely in the hands of the white hen, she perfectly satisfies herself by sitting down close by, and keeping a most watchful eye on every movement. It is really most amusing to watch the whole party parading down the field, the two hens clucking and scraping with all their might, and the distracted youngsters first running to one and then to another, and, happily for them, getting a more ample supply of delicate little morsels by the exertions of two mothers than had they been left to grow up in the usual course of hen and chicken nature under one.'

The attachment of common fowls is not only strong for their progeny, but in some cases is so for those who protect and feed them. The following story will show that this is the case. Sylvester Boswell, an intelligent gipsy, told the writer that some time since he had a chicken that had lost its mother by accident, when only a few days old. He used

to place the little orphan in his bosom to keep it warm, and there it nestled until it became too large for its cosy lodgings. Afterwards it followed him about like a dog, roosted at night near him in his tent, and never seemed happy unless in his company. 'I'm sure, sir,' said the gipsy, 'the little thing was as much attached to me as a child could be.'

Common fowls are intelligent. A gentleman had an old rooster named Ned, which he exchanged with a farmer, at whose house he called soon afterwards. Old Ned recognised him, followed him to the house and waited on the doorstep for his return. When his master left the bird appeared to be heart-stricken. He would not associate with the other fowls, refused his food, and in a few weeks died, and it was thought of a broken heart.

The common hen seems to possess the power of comprehending a difficulty and of devising the means of getting out of it. In a small town in Surrey a candle factory exists, around which there are often sundry waste pieces of wick. On one occasion a chick got hold of a piece unusually long, and began to swallow it. An inch or two disappeared, but the remaining part of the wick refused to follow. The chick became uncomfortable, for it could not move the wick either way. He turned and twisted his head and body about, staring this way and that way, as if looking for some one to render him assistance. At length the mother hen saw the trouble her young one was in, and, immediately seizing in her beak the dangling end of the wick—

'She pulls, he backs, she pulls again,
At length the wick comes out;
The chicken is relieved of pain,
And very glad, no doubt.
He never waits to "breathe a thanks,"
Nor she a "how d'ye feel?"
The business done, they join the ranks,
To find a better meal.'

That the mother did not regard the wick as a tempting morsel is evident from the fact that she dropped it on the ground and walked right away from it.

There are some very commendable traits in the character of the male bird of the common fowl family. He is a noble, heroic, and courageous fellow. Who can look at him and

not admire even his manner, his appearance, his upright posture, his dignified walk, his full breast, his glowing colours, his flowing, graceful tail—his comb, which looks like a helmet—and his legs armed with spurs with which he can defend himself and his family? How many lessons we may learn from him! At early morn he strains his clarion throat to awaken man to labour, and thus teaches the value of early hours. He shows his devotion, affection and generosity by working assiduously in providing food for his companions, and refusing to eat any himself until they have been called to share the store he has discovered. Some time since, when passing through Rochester Row, we observed four fowls seeking, amongst some refuse, their morning meal. Three hens were near each other, the male bird was a little distance from them, scratching away in right good earnest, when suddenly, raising his head and looking in the direction of the hens, he made a peculiar noise, which they seemed to understand, for two of them at once ran up to him and began picking up some kind of food he had found. One hen, however, lagged behind, and the male bird, as if afraid she would not have her share, picked up something and held it in his beak. On her arrival the hen saw this, and the good-natured fellow allowed her to take the reserved morsel out of his own mouth. He then joined the others in picking up what remained of the treasure he had discovered. Does not this noble bird teach the lesson of true generosity?

Drummond states that in our own times a British man-of-war was indebted for a victory to the crowing of a cock. At this moment (when she was on the point of striking her colours) a cock, having by the wreck been liberated from the broken coop, suddenly perched himself on the stump of the mainmast, clapped his wings, and crowed aloud. In an instant three hearty cheers ran throughout the ship's company, and no more talk of surrender.

'Such great events
From trivial causes spring.'

If there is danger to himself and family, as he is generally on the look-out, he gives the warning note, which they understand and obey. He will defend his family against the hawk or any other enemy even to the death.

The courage of the cock is shown in an eminent degree in the following anecdote: 'A sparrow-hawk alighted in a populous courtyard. A young cock instantly darted at him, and threw him on his back. The hawk defended himself with his talons and his bill. Having a little recovered he rose, and was taking wing, when the cock rushed upon him a second time, upset him, and held him down so long that he was easily caught by a person who witnessed the conflict.'

Although these birds display much courage in their combats with each other, they are, nevertheless, susceptible of strong friendship one for another.

FAST FRIENDS.

A person in Chester had two fine game birds which had won him many battles. In order to see which of the two was the better bird, he put them together to fight. But they had no sooner eyed each other than a recognition took place: they were old friends, and would not fight. He then threw before them some grain, which they shared quietly between them without quarrelling. A hen was then introduced, but failed to provoke them to a contest. At length their owner had their feathers painted so that they might not know each other; but even this plan was not successful; they would not fight. They were then pitted against two strange birds; with these they fought, and each obtained a victory. As their mettle now seemed to be aroused they were again brought together to fight, but they would not do so, and it was found necessary to give up the attempt to dissolve their mutual attachment. Noble, brave fellows! say we, with more sense than the unfeathered bipeds.

The following is curious: 'A driver of a stage-coach in Kent had a favourite male bird he named Trumpeter, who one day had the misfortune to have his leg broken in a rat-trap. The leg was amputated, the fibres of it were gathered up, the bird was placed in a sling, and fed for five weeks; at the end of that period the bandage was taken off, and the wound found to be completely cicatrized. The owner of the bird, being an ingenious man, contrived a wooden leg and foot, armed with a spur, which he attached to the stump of the artificial limb. With this the cock strutted about with great

activity among the hens of Canterbury, and was a terror to all his feathered rivals.'

It is much to be regretted that the natural courage and heroism of these noble birds have been taken advantage of by brutal men, who for sport, profit, and pastime have trained them to fight, and tear each other to pieces. Such men only lack the opportunity, or they would have men and beasts, instead of birds, to revive the infamous gladiatorial games.

Cock-fighting is now an offence punishable by law. Retribution has followed this cruel practice. A Mr. Ardesoif had a favourite game cock who had won many battles. The last bet he laid was lost, which so enraged him that he had the bird tied to a spit, and roasted alive before a large fire. The screams of the bird were so affecting that some gentlemen attempted to interfere, which so enraged Ardesoif that he seized a poker, and with the most furious vehemence declared that he would kill the first man who interposed; but in the midst of his passionate asseverations he fell down dead on the spot.

The birds whose instincts, habits, etc., we have been describing are frequently mentioned in the Scriptures. 'Of the several intimations,' says Mr. Knapp, 'relating to the voice of animals as preserved to us in the Scriptures, we have none more deserving of notice than the crowing of the cock throughout the night, there being a first crowing about midnight, and a second again as day began to dawn, and this so regularly as to mark the progress of time from a very early period.'

SPECIAL PROVIDENCE.

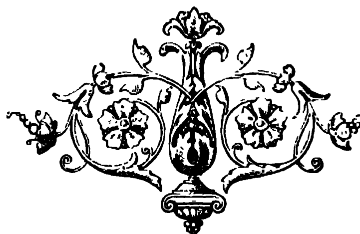
The lives of men have been miraculously saved and preserved by the interposition of birds.

It is said that Brentius, a good man of Germany, because he taught the people Gospel truth, was threatened with death. His life was sought, and he had to conceal himself, which he did for fourteen days, among some fagots of wood on the top of a house. This house was searched, and the spear of one of the soldiers entered the fagot behind which Brentius was hidden, and from which he had a very narrow escape. 'Let us leave,' said one of the troopers; 'he is not here.' Every day Brentius was concealed, a common hen went up,

and near his hiding-place laid an egg. This, with some bread he had taken with him, preserved his life. On the day the soldiers left the town, the hen did not, as usual, lay an egg, as if she knew it would not be needed, for Brentius was then at liberty.

In leaving our farmsteads, after what we trust has been a pleasant visit, we ask you to join us in the following good wishes to our feathered friends, from whom useful lessons may be learned:

'Kind Chanticleer,
Thy gallant breast may love's pure transports fill;
Proud be thy crest unshorn—thy watch-cry clear;
May plenty gloss thy plumes,
And joy thy spirit cheer.'

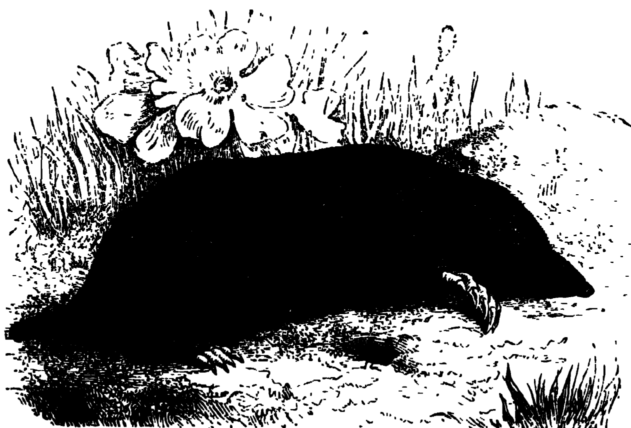




CHAPTER XIII.

MINERS OF THE SOIL.

'Well said, old mole; canst work in the earth so fast? A worthy pioneer.'
SHAKESPEARE.



The Mole.

IT is to be regretted that many persons deprive themselves of much pleasure by not understanding the structure, habits, work, and uses of different tribes of animals, and particularly by their readiness to detect the apparent mischief and injury done by some of them, without inquiring into the good they may, in unseen ways, be constantly effecting.

Many of Nature's underground workers, especially her sleek-

coated miners, the moles, have been underrated in their value, and denounced as unmitigated pests, whose destruction would be a boon to our farmers, graziers, and gardeners. Some years since it was no uncommon thing for men, not fully occupied by other business, to become professional mole-catchers. We once knew a village schoolmaster who, after 'teaching the young idea how to shoot,' was employed during the evenings of spring and summer in exterminating moles. When caught, he would suspend them from the ends of willow branches, and then leave them to undergo the process of gradual decay, often much to the admiration of village rustics and landowners, who knew no better, but who viewed them as so many trophies of victory achieved over the common enemies of their land and its produce.

In Jesse's 'Country Life' it is said: 'Such is the impression of the injury done by it (the mole), that in some parts of Somersetshire the farmers are in the habit of carrying a gun when they walk in their fields, in case they should see the earth in the act of being turned up by the moles; when this is the case, the farmer fires at the spot, and thus many moles are killed in the course of a year.'

That mole-catchers, and those who employ them, are mistaken in supposing the extinction of these animals would secure to them better crops, may, we think, be easily shown. To do this, and to prove that moles—as scavengers—are really of great service in the economy of nature, is our object.

As one of the most interesting features of natural history is the wonderful adaptation of the structure of different animals to their peculiar necessities and places in nature, we intend briefly to describe the organization of the mole, in which we shall see how eminently it is fitted for its work as a miner and engineer.

The mole belongs to the family *Talpidæ*, and is included in the second sub-order of *Carnaria* called *Insectivora*, which name is derived from two Latin words—*insecta*, insects, and *vora*, to devour. The mole, when full-grown, is not more than five or six inches long; its body is of cylindrical figure, and very compact in form. Its ears are not protuberant, but simply round holes situated between the neck and shoulders, and covered with thick fur as a necessary protection against injuries from external objects. Its hearing is very acute. It

was supposed by Aristotle, and other eminent men of his day, and for a long time afterwards, that the mole had no eyes; hence the expression used by Shakespeare—

> 'Pray you tread softly,
> That the blind mole may not
> Hear a footfall.'

The eyes of the mole being very small, deeply set in its head, and somewhat rudimentary, no doubt gave rise to the notion referred to. Derham, however, says, 'that by the help of microscopes he could distinguish the crystalline humours of the mole's eye, and that he discerned the pupil was round and the cornea conical.' He further states, 'These creatures, I imagine, have the faculty of withdrawing their eyes, if not quite into the head (as snails), yet more or less within the hair, as they may have occasion to use or guard their eyes.' If the eyes of this animal were to project, or were even level with the external part of the head, they would be exposed to great injury, to which the mining operations of the mole would render them peculiarly liable. It is therefore much to its advantage that its eyes are so deeply embedded in its head, and protected, as they are, by a thick covering of hair or fur. The neck of the mole is very short, thick, and strong, but the hinder parts of the body are weak. Its head, in shape, is much like that of the pig. It has a long cartilaginous nose, made strong by a bone at the end of it, and by which it can burrow in the earth with amazing facility, using it as if it were a living auger. The nerves of the nose are very sensitive, and larger than any other proceeding from the brain, which, with its acute sense of smelling, enables it with comparative ease to find and distinguish the food it requires. The collar-bones are, for the size of the animal, of remarkable strength and thickness. In burrowing it also uses its fore-legs, which are very muscular; and by its hand-like paws, which are armed with trenchant claws, and with the palm directed outwards—as a man would use his hands when swimming—it very easily shovels the loose soil behind it, the hind-legs acting as useful propellers. The jaws and teeth are formed for living upon worms and insects.

The expensive skins of seals, otters, and beavers cannot vie in softness and sleekness with that of the mole. Its fur is remarkably fine in texture, and having no particular grain, lies

smoothly in every direction, and it is said that it not only defends the animal from cold and wet, but that no kind of earth will adhere to it, hence the reason why its body never presents a soiled appearance—

'No speck of earth his doublet ever wears.'

The coat of this animal is now highly valued, and used for making money-purses, and other useful articles. It is not left to bleach and rot in the sun and wind, as formerly, on the boughs of trees or barn-doors.

From the above description it will be seen that the mole is, in its structure, admirably adapted for the work it has to perform, and for its subterranean existence. Now for a few proofs of the mole's mining and engineering skill.

Moles, like other animals, have their homes. These are ingeniously contrived and conveniently arranged, both for rest and security when threatened by danger, for rearing their young ones, for meeting all their requirements, and contributing to the pleasure of their underground life.

Moles make no secret of their location in any district whatever, be it garden, lawn, or field; but soon show by small mounds of newly turned-up earth that they have been, for some object or other, very actively at work. By describing this work we may ascertain whether moles are as injurious to produce as some suppose them to be, or whether they are of any real service in protecting it from destruction which might be caused by insect life.

First, however, let us notice that the rallying-place of the male mole and his partner is the fortress, usually formed under a large hillock, which is generally raised in a situation of great safety and protection, either under a bank, against the foundation of a wall, at the root of a tree, or in some similar locality. The dome of it is strong, and contains several galleries. The passages in the interior part of the fortress are intricately arranged, even more so than the maze at Hampton Court. From this there is a main road. Branching from it, and in different directions, the moles run a number of subterranean passages, which afford the residents ample opportunities of making their escape, and baffling their enemies who may happen to disturb them in their secluded retreat. The fortress or citadel constitutes the winter quar-

ters, from the autumn to the spring, of the mole and his partner, and of their sleek black-coated progeny.

The nest of the mole is a curious structure, and is usually made where two or three passages intersect each other, and at some little distance from the fortress. The nest is lined with a mass of herbage, grass, and leaves, and is, of course, the birthplace of the young ones, who come in families of three, four, and sometimes of six. Here, it may be said, centre all the wealth of the life, the care, and pleasure of the parent moles, whose affection for their progeny, especially that of the mother, is so very strong that, with surpassing forethought, they collect food for them even before they are born. This food is found in their hunting-grounds contiguous to their nest and fortress.

Mole-runs are sometimes only just below the surface, while others are some feet deep. So indefatigable a worker is the mole in this department of labour, that it will make some yards of roadway in one day, throwing up hillocks of earth four or five yards apart. Old mole-catchers and observant labourers state that 'the mole works not only with desperate energy, but with great perception of time, resting at intervals while the work is performed by another.'

The food provided by the parent moles for their future young consists of worms, collected in early spring, and deposited in a kind of pit or basin holding about a peck. This pit is made during the winter, and is placed conveniently near the nest, so that the mother may not be under the necessity of leaving her young ones for any length of time together, as they constantly require the warmth of her body. However reprehensible, from a humane point of view, may be the plan adopted by these subterranean hunters, so that they may have this 'diet of worms' as fresh as possible, it has been stated that the moles bite the worms at the back of the head, to deprive them of the power of locomotion, but they do not quite kill them. As the parent moles devour their food alive, it may be a necessity of the nature of their young ones to require nourishment, not only of the same kind, but in the same condition. By the above strange method the decomposition of the worms is at least, if not entirely prevented, very much retarded.

The mole is a thirsty animal, frequently requiring water.

To procure a constant supply of it, this little excavator, who is also a well-sinker, makes holes in its burrows to catch the water. In an extremely hot summer, when rain seldom falls, moles will run their burrows towards a stream, in going to which they are often captured. Moles have been known to leave their burrows during the night, and to come up to the surface of the earth to hunt for frogs, mice, and other small animals, of which they are very fond.

The following extract taken from a letter sent to a friend by a gentleman in Kent, who for many years has watched the habits of moles, contains some curious information respecting their young, who, he says, 'May first be seen seeking their own living in August and September, and if then very dry weather, they come to the surface for food, and many of them get "fly-blown" and eaten up with maggots; this I have often seen.'

I shall now show more particularly that the mole is, in his mining operations and by collecting that kind of food on which he subsists, doing much more good than harm in nature and for man.

Myriads of insects, some of them so minute as not to be discerned by the naked eye, which prey upon almost every kind of produce found on or above the surface of the earth, causing great devastation thereby, at the same time defying man's best efforts to exterminate them, may be kept considerably in check by birds and other animals who feed upon them. But the destruction of those numerous forms of animal life existing underground, and which feed upon and injure the roots of corn, vegetables, flowers, and other plants, is of necessity attended with much greater difficulty than that of insects above the ground; because, in the one case, these enemies are open ones, and may be seen; in the other, they are hidden from view, and their discovery would involve a vast amount of time and labour. We therefore must accord to the mole the credit of being able, by the work he does in his dark, intricate, and subterranean retreats, to keep down that preponderance of insect life which no other agencies could possibly accomplish.

Although the above assertions are indisputable, moles, as before intimated, are much maligned, cruelly treated, hunted to death, and, I fear, still wasted by thousands every year,

partly on account of a prevailing belief that they are destructive to the roots of corn and vegetation, and because the mounds of earth they throw up in our fields, gardens, and lawns are considered to be very unsightly.

But against this fancied evil must be placed the good they do. Mole-runs, where the land is low and wet, do it some good by helping to drain it; and the soil these animals cast up when spread gives a new life and fertility to the sward. So useful are moles as 'top-dressers,' according to the ideas of the Ettrick Shepherd, who for years closely watched their habits and work, that he says: 'If a hundred men and horses were employed on a common-sized pasture-farm, of from 1,500 to 2,000 acres, in raising and conveying manure for a top-dressing, they would not do it so effectually, so neatly, or so equally, as the natural number of moles on that farm would do of themselves.' Drainage and sub-cultivation were no doubt first suggested to man by the mole.

So far from the mole being destructive to roots and vegetation by feeding on them, it has no grinding teeth, only those that are formed for cutting and tearing. To prove they are not herbivorous, a great physiologist once placed two moles in a barrel, with roots and vegetables, which neither animal touched, but one of the moles ate up the other. A bird was devoured by the same mole, but it turned away in disgust from a toad; it was finally left in the barrel with nothing but roots, which were not touched, but the mole was found dead in the midst of them. If roots and crops are injured by the mole, it is simply because they are disturbed by it in searching for its proper food, worms and insects, or the larvæ which may be deposited among them.

Whatever the special uses of almost numberless tribes of insects may be, we do not stop to inquire. From the ravages they commit, it becomes necessary that some means or other should be used to keep them in check. For this purpose provision has been made, in insectivorous birds, who have to do battle with those on the earth; and in moles, who carry on a warfare against those under the earth. Birds and moles are great co-workers in nature, but as similar circumstances are connected with what they do, and as their active operations are followed by corresponding results, I may briefly refer to them.

Birds, the 'tiny police of the air,' very often destroy the buds of fruit-trees, and thereby may, to a certain extent, lessen the future crop; yet were it not that in so doing they clear these trees of voracious insects, which live and prey upon them and their produce, our gardeners would suffer much greater losses by the smallness of their crops than, happily, they now do. Hitherto, the extinction of these small but formidable enemies of our blossoms, fruit, corn, and flowers has set at naught man's greatest ingenuity—even all his efforts and chemical preparations, made and used for the same object, have been entirely futile.

Every spring, with its sunshine and flowers, brings with it swarms and tribes of insect-workers, whose brief existence is spent in unceasing activity, especially during the summer season, and against which it is necessary to carry on a perpetual warfare.

Bennett, a great fruit-grower in Gloucestershire, would never allow a gun to be fired either in or near his orchards, nor any kind of bird therein to be shot, or in any way to be interfered with. It was well known that while some of his neighbours regarded these feathered scavengers as enemies, and therefore did all they could to exterminate them, Mr. Bennett had always more plentiful crops of fruit than they, 'owing,' as he would say, 'to the services rendered by the birds in keeping his orchard clear of destructive insects.'

In one of our English counties the farmers resolved to destroy the rooks, which they believed were so ruinous to their ripening crops of corn, that if they could only get rid of them they would reap richer harvests, and be all the better off in pecuniary matters. They partly succeeded in their object, but at a fearful price, for, in the absence of these 'black scavengers,' who usually follow ploughmen for the purpose of obtaining worms and grubs—the food they relish most—the different insects increased so alarmingly in numbers, and became so injurious, that the farmers were half ruined by failures in their crops. Having destroyed the rooks, numbers of women and boys had to be employed to follow the ploughmen to pick up the worms. The farmers at last saw their folly, and wisely determined to have their friends the rooks back. The breeding of them was encouraged, and they may now be seen, as formerly, following the ploughman and

helping to clear the land of grubs, worms, and other destructive insects. And I may add that the farmers now confess that to these birds they are greatly indebted for increased crops and more profitable harvests.

Moles have often been treated in the same way, and mischievous results similar to those described have invariably followed. A few years since, on the land of a farmer in Norfolk, grubs, wire-worms, etc., were so numerous that his crops were almost entirely destroyed by them. About eighty bushels of them were collected; and yet at the very time when this occurred, the animals that would have destroyed the grubs and saved the crops were nailed on the farmer's barn-door. Many moles were gibbeted, and others were left to oscillate from the branches of trees. Ignorance of the utility of many of God's creatures is often a prolific source of mischief to man.

It happens that good is sometimes preceded by, and accomplished only through, the agency of an apparent evil. For instance, a bird in destroying one bud or blossom, devours a sufficient number of insects which would, if left unmolested, destroy, in all probability, not only several buds, but thereby lessen the crops of fruit the trees might otherwise yield.

Rooks may eat one acre in ten of ripening corn, but were it not that they check the increase of those insects which feed on the roots of corn and grass, those insects would, by their voraciousness, inflict upon the farmer a very much heavier loss than do the rooks by consuming one acre of grain in ten.

While it is admitted the mole may, by his excavations, disturb and even injure the roots of corn and vegetation, he is nevertheless doing a larger amount of good to the farmer than is done by the rook, because he can detect and devour those insects to which this bird cannot in all cases obtain access.

The mole is a cheap worker. The rook is in a great measure dependent on the ploughman to turn up the soil for much of the food he secures, and which, of necessity, involves some expense to the farmer. But the mole is not under this obligation; he is his own ploughman, and in the labour he performs is quite independent of man, horses, ploughs, and blacksmiths; he requires neither the knowledge nor money of human beings to aid him in accomplishing the

object of his arduous and unremitting exertions. He is instinctively a clever engineer, and possesses an intuitive knowledge of the best means of obtaining an independent living.

M. Weber, in speaking of the voracity of two moles, says, 'that in nine days they had eaten 341 white worms, 193 earthworms, 25 caterpillars, and a mouse, both the bones and skin of which they swallowed. When he restricted them to a vegetable diet they died of hunger.' It is, we believe, a well-ascertained fact that moles will, in twenty-four hours, eat of insects and their larvæ about half their own weight.

Moles have to change their quarters, and to look out for new domains, or fresh hunting-grounds where they may find new supplies of food. Wherever they may locate, it may be taken for granted that there they have found it, and that, if left to do their work, there they will remain until scarcity of food drives them elsewhere.

Taking a debtor and creditor view of this subject, and considering the terrible ravages which would be committed by increasing numbers of insect-feeders on the roots of almost all kinds of produce, and placing in one scale the amount of injury which moles in some respects may do, and the good they effect by clearing our fields and gardens of voracious and unseen workers in the other scale, we think it may be admitted that a heavy balance is in favour of the moles. There can be no doubt, therefore, that it would be good policy in all respects to give these miners of nature an opportunity, at least, of doing the useful work for which they are so well adapted, and by which, at so little expense, they are so beneficial to man, not only in protecting his crops, but in saving him a vast amount of anxiety, time, labour, and money.

If, then, the good done by moles more than compensates for the little damage they do, let us not undervalue or disregard their services, but rather encourage and appreciate them. Let us not forget that hurricanes sweeping in fury across our landscapes, and flashes of forked lightning, may cause great devastation both on land and sea, but at the same time are alike useful in clearing the atmosphere of noxious vapours, and thus contribute to the general good.

Whenever it can be proved that moles become so numerous that to check their increase by trapping them, or otherwise, would be to the advantage of our field and garden crops, then

no valid argument could be raised against it. But to assert that they can become too numerous admits of some doubt: because, if they cannot obtain their own natural food, and being too small to attack and to overcome larger animals than themselves, they must either devour each other, or literally die for want of sustenance. The evil would, in either case, work its own cure.

Although we believe that God has made nothing in vain, and that other and higher reasons than those already adduced might be assigned why moles should be allowed to live and to work as nature intended they should do, it may be noted, that while all other carnivorous animals prey upon others which, in many cases, constitute the food of man, it cannot be said that, in this particular, moles either encroach upon his rights, or rob him of any of his privileges.

However some men may become the slaves of appetite, surely no one could ever be found who would begrudge to these velvet-coated miners their simple diet of slugs, mice, frogs, worms, and grubs, for which they toil so hard, and so richly deserve. From what has been stated, it must, we think, be clear to everyone who carefully and impartially examines the subject, that the total extinction of these busy underground labourers would be a sad interference with the laws and arrangements of nature, and very little less than a national calamity. These animals seem to plead for themselves, thus:

Oh! list to our petition,
  Ye lords and ladies fair,
And grant us your protection
  Against the trapper's snare.

Do not deny this favour
  To moles of 'low degree';
Though we may work in darkness,
  We will contented be.

Our home, food, life, and habits
  May all seem strange to man;
But that we should enjoy them
  Is part of Nature's plan.



CHAPTER XIV.

ACTIVE WORKERS, WITH LONG TAILS AND PRICKLY COATS.



HILE many animals, especially domestic ones, such as our cats, dogs, birds, and others, are much admired because of their beauty, utility, and intelligence, their sweet songs, and winning, affectionate ways, and are treated with the most tender care and humanity, well fed, and protected from harm, it is the ill-fortune of some animals not only not to be admired, but to be hated and dreaded, and to be the objects of the greatest antipathy, and often of cruelty, generally inflicted upon them by those who are ignorant of their wonderful structure and uses in nature.

The rat and hedgehog, whom we may denominate Nature's sanitary commissioners, seem to have incurred a large share of man's displeasure, and to be exposed to very much unkind treatment.

Although we do not deny that these animals, especially the rat, are mischievous and destructive in their habits, it would be unfair to them to look only at one side of their character, or to denounce them as pests which ought to be exterminated.

They are, comparatively, but little seen, and certainly not thoroughly understood, not even by those who suffer the most from their depredations. They no doubt form as important links in the chain of nature as do many other animals who are considered to be more beautiful and useful.

The plea that rats of all kinds are useless animals, were it true, is no justification for the cruelties to which they are often subjected. To keep them in check may be a necessity arising out of their great fecundity, but the means employed to do so should be of the most humane kind.

Those men who for mere pleasure set one animal to worry, tear, and take the lives of other animals, which is often done in ratting-matches and other sports, are a disgrace to humanity and civilization, and by so doing act in direct opposition to the purposes of Him who has created them, and whose 'tender mercies are over all His works.'

Cruel pastime is demoralizing to those who indulge in it, and may lead them on to the commission, it may be, of the worst of crimes. This should act as a kindly word of warning to all, especially to the young, to avoid the contaminating influences of such wicked, and worse than brutal, sports. The rat is, as much as any other animal, a



The Rat.

creature of God, and therefore should not be treated with wanton cruelty.

We will now refer to the structure and habits of the rat we denominate our long-tailed client. Rats belong to the order *Gliris*, and constitute a very numerous family of gnawing mammalia. At one time, black rats were common in England, but their numbers have been diminished by the introduction of their brown relatives, the Norway rats, who are stronger and more enterprising than the black kind. Rats have long tapering tails, covered more or less with scales. Their ears are very distinct, and their eyes are large. They have sharp cutting teeth, which they use very industriously. Nothing seems to come amiss to their voracious appetites. The hardest and the softest, the sweetest and most savoury food,

is welcomed by them. If they cannot obtain what they like the best, then they will make a raid upon clothes, paper, old hats, boots and shoes, and failing these, they will devour one another, the weakest of course falling victims to the strongest.

They burrow sometimes a great depth under our granaries and storehouses, often rendering them unsafe. They are found in our houses, barns, cellars, corn-ricks, and even in ships, in which they have committed such havoc as to endanger their safety when at sea. When they have been driven out of one cabin through the port-hole, with the intention of drowning them, they have been known to run along the ship's side and re-enter by the first open port-hole they have met with, and so regain possession of the vessel.

The marauding propensities of rats on shipboard have sometimes brought innocent people into much trouble, as the following anecdote will show. We have been informed by a very intimate friend, to whom the circumstance we are about to relate was well known, that about five years ago a family, consisting of a gentleman, his wife, and two daughters, were returning, with other passengers, from the Cape of Good Hope to England in one of our mail steamers. The two daughters occupied the same sleeping cabin. On several mornings they missed articles of wearing apparel, such as cuffs, stockings, pocket-handkerchiefs, collars, and other things, but could not account for their disappearance.

These losses caused much unpleasantness on board, because all felt they might be suspected. Suspicion was, however, directed to the stewardess, who declared she was innocent and entirely ignorant of what had become of the missing articles. Still the woman was thought to be guilty.

One morning the mystery was solved by part of a stocking belonging to one of the young ladies being seen by the side of their washhand-stand. The ship-carpenter was sent for, who soon discovered, in a hole of the wainscoting, the other part of the stocking. The board was then removed, and to the astonishment of all who saw them, there were all the missing cuffs and collars, etc., and, amongst them, a nest of young rats. The stewardess was therefore freed from blame, and the parent rats were, and no doubt truly, proved to be the real delinquents.

Of course these rats will be condemned for their pilfering

proclivities; but we must remember they are not, like ourselves, moral agents, and therefore not amenable to the law which punishes human beings for acts of dishonesty. The foregoing story, however, shows one very commendable trait in the character of the rats referred to. They well knew that the charge of a young family would soon be committed to them, and so, impelled by strong parental instinct and affection, they wished to make their expected progeny as comfortable as possible; and as the natural resources and materials for this purpose were not available, they substituted for them the little articles before mentioned, with which the rats were no doubt very much pleased and perfectly satisfied. Did not these rats make a virtue of necessity?

Rats are not destitute of courage or affection. They will defend themselves and young ones against fearful odds, and will not yield to an antagonist until fairly overcome by superior force. They often exhibit a degree of ingenuity and care in what they do which is almost incredible. We have read of them rolling eggs along the floor without breaking them, and handing them to each other when they have been mounting staircases; of one rat dipping his tail into a bottle of salad-oil, and the other rats licking it, and then, to carry out the principle of mutual aid and co-operation, another rat dipping his tail into the oil, and so on, until the bottle has been emptied.

It is said that a rat, on the occasion of a flood in the Tyne, leapt on the back of a swan to save himself from drowning, and that as soon as the swan reached the land, the rat jumped ashore and ran off. The swan was indeed, in a double sense, a lifeboat to the rat.

Jesse says 'that some rats who used to feed with some of the pigs at their trough were sufficiently sagacious never to do so unless the pigs were there, as if they considered that in their company they had immunity from interference and danger.'

That rats show strong sympathy towards those members of their family who may be disabled, or in any way afflicted, is evident from the following story. A person, standing one day near the margin of a river, observed three rats abreast running slowly towards it. When they reached the water the middle rat began drinking with great avidity. When it had quenched its thirst it was again placed between the other two,

and all forthwith commenced their return journey. As they passed near the person referred to, he noticed the middle rat was blind, which was no doubt the reason why the other two rats had so considerately and feelingly guided this blind member of their fraternity to the water, which probably it could never have found without such assistance.

In 'The Reason Why of Natural History,' we read that 'Rats are exceedingly clean animals; they invariably wash themselves all over after eating, no matter what. The operation is performed in the same manner as the cat does, by licking the paws. When a rat eats, he, by means of his sharp front teeth, gnaws away a mouthful, which he deposits in a sort of pouch formed between his grinding teeth and his cheeks. Then he ceases gnawing, and masticates his food by moving his jaws incessantly and without pausing. They move ten times faster than the jaws of a rabbit. When a rat drinks, he laps up the fluid like a dog. A rat generally tastes his food with his tongue before eating it. When sleeping, the rat rolls himself up into a ball, and places his nose down between his hind-legs; his tail is curled up round the outside of his body, no part of him projecting but his two delicate ears, which are beautifully adapted for catching the least sound.'

The water-rat is found in most parts of Europe, on the banks of rivers, ditches, and ponds, in which it makes a burrow some distance, and its nest at the end of it. Here it goes for security, shelter, and protection, and here it rears its progeny, consisting of a brood of five or six, which it has been known to have twice a year. It feeds upon roots, subaquatic plants, and other vegetables, and some historians say upon small fish, frogs, mice, and young ducks. Although it is an expert swimmer and diver, it cannot remain under the water more than a minute at a time without coming up to the surface for respiration. This rat may be distinguished from the black and brown rat by having a larger head, smaller eyes, shorter ears, and a blunter nose than they possess.

That animals may be taught to control themselves and to act towards each other in a way altogether contrary to their natural instincts, is evident from an interesting account of a rat, cat, and dog, published some time since in the *Animal World*, and which we quote as being not only wonderful, but deeply interesting.

'An old soldier told me the following story, which, though very peculiar, may be accepted as absolutely true by your readers: "There was an officer in my regiment who had a dog and a cat, and I had a rat, and he used to tell the cat to pick up the rat, and then he used to tell the dog to pick up the cat, and off they used to go to the mess-room, the dog carrying the cat, and the cat carrying the rat." I said, "Didn't they hurt each other?" He said, "Oh no! When they got to the mess-room, the officer told the dog to put down the cat, and the cat to put down the rat, and they used to have a play together; and after awhile he would say, 'Now we must be off,' and the cat picked up the rat, and the dog picked up the cat, and home they went."'

If, as the above anecdote implies, rats not only can fraternize with animals not of their own kind, but even have a liking for them, they particularly show a strong affection for their young ones, in providing food for them, in watching them after they have left the hole, and in defending them when exposed to danger.

Although great power may be acquired over rats by the use of essential oils, which are a great attraction to these animals, there can be no doubt that human and humane influences sometimes have a marvellous effect in subduing and taming animals that are naturally very ferocious. In proof of this we give the following story, related to us by a friend who has many times seen what we are about to describe.

Some years since a professional ratcatcher and trainer might often be seen in the streets of Nottingham, with his body nearly covered with common brown rats. Some would be on his shoulders, and on his arms, others up the sleeves of his coat, while many would nestle on his bosom under his waistcoat. Some would answer to their names, and all of them, when the word of command was given to retire, would at once leave his body and run into a box he usually carried with him. They never injured him or attempted to make their escape. 'This man pledged himself to tame the largest and most vicious rat that could be brought to him.'

The following information appeared in the *Evening Standard* newspaper, January 14, 1882:

'RATS AND PHOSPHORUS.—A Baltimore builder tells a curious story in an American contemporary, showing how the

penchant which rats have for phosphorus may endanger life and property. In repairing a private house heated with a steam apparatus, he had occasion to take up a piece of flooring, when he came upon a rendezvous of rats, and to his surprise found a large quantity of matches in close contact with the pipes of the apparatus. It turned out that the matches had been kept in an open tin box on the kitchen shelf, whence they must have been abstracted by the thievish rodents. If, in their "brigade drills," the rats had set fire to some of them, the house would soon have been in flames, and then one of those clever individuals, who are always ready with a cause for any given effect, would have discovered that the mischief was wrought by the steam pipes. Moral—Keep lucifers out of the reach of rats."

PRICKLY COATS.

Having referred to our long-tailed client, the rat, we shall now give a little information respecting our other client, the hedgehog, to whom nature has given, for special reasons, a prickly coat. The hedgehog, as well as the rat, being much disliked, has been, and we fear still is, subjected to much cruel treatment, inflicted upon it by persons who entertain certain superstitious notions respecting its habits, and who are totally ignorant of its peculiar structure and uses to man. This animal has been regarded by some uneducated people, even in England, as an evil spirit, and therefore on this account has been treated by them with the most relentless cruelty.

'The hedgehog,' says Drummond, 'is assailed by dogs, torn in pieces, drowned or burned, because he sucks cows! whereas he might as well be accused of sucking the Great Northern Bear. He also climbs apple-trees, and carries off the fruit sticking to the spines of his back. Such a dexterous feat would merit the apples.' As for the charge of cow milking, it is physically impossible, the mouth of the hedgehog being too small to admit the dug of the cow. Baird informs us that 'in Warwickshire it was usual to give a certain amount of money annually for the destruction of hedgehogs, because they destroyed a few of the eggs of game. The money was paid for urchins.'

The above, and other cruelties we could mention, consti-



tute the reason why we undertake to plead the cause of our prickly-coated client, the hedgehog, of whose organization, mode of life, and habitat we will give a brief account.

THE HEDGEHOG belongs to the third division mammalia, order *Carnaria*, family *Talpidæ*. It is common in England, and is distinguished by having its body covered with spines, and possessing the power of rolling itself up into a ball, which it always does when attacked by foxes, weasels, stoats, or other animals, who appear to be its sworn enemies, and which take every opportunity of destroying it. Thus rolled up, with the spines sticking out all round its body, this little helpless and inoffensive animal defies the intentions of its greatest foes. It is only when thrown into water that it is induced to open itself, and to expose its head and the vulnerable parts of its body. Then it is that it becomes a prey to its attackers. We fear that for this dastardly and unmanly act cruel men and boys are more to blame than either foxes or other animals.

The spines of the hedgehog also prevent it from being injured when it throws itself from an eminence, which it has been known to do as high as twelve or fourteen feet. It has then unrolled itself and trotted off quite unconcerned.

If the hedgehog must plead guilty to the indictment of sucking the eggs of game, it exhibits some ingenuity in the plan it adopts to make sure of their contents. It places one end of the egg on the ground, holding it in an upright position by its two fore-feet; it then perforates the other end of the egg with its teeth, applies its mouth to the hole, and draws the contents out and swallows them, never wasting a particle.

The hedgehog's egg-sucking proclivity may be very annoying to the owners of game-preserves and their keepers, but as this animal earns what it eats, it surely deserves any luxury in which it may indulge.

The hedgehog weaves its nest of moss, and covers it with leaves, so as to resist the heaviest rain. It has the credit of knowing beforehand changes of the wind. It has several entrances to its nest, but keeps only one open at a time. If the wind is likely to blow into the open entrance, the animal at once closes it, and opens another in an opposite direction. During the winter it hybernates in this admirably constructed nest, all the time being rolled up within a covering of moss and dead leaves, so that a superficial observer would never

dream that underneath it was a form of animal life. In this state it will remain, if left undisturbed, until the warm weather of spring induces it to leave its dark and quiet abode for a brighter, more varied, and active existence.

It is said the hedgehog possesses a poison-resisting power. Pallas, the Russian naturalist, states, 'that hedgehogs can eat the beetles used in medicine for raising blisters with impunity, which when swallowed by other animals cause dreadful torments;' and since his time, several observers have stated that this animal is insensible to poison of any kind, and even prussic acid has no effect on it. To discover how this is would no doubt be of great service to mankind. This animal has often been bitten by adders without receiving any injury.

The flesh of the hedgehog is highly esteemed by the gipsies as an article of food. They consider it to be far more delicate eating, and richer in flavour, than wild rabbits; particularly in the month of November, when they are in much better condition than at any other time of the year. Gipsies preserve the oil or fat of this animal to put on their hair, which makes it very soft, and gives it a dark and glossy appearance. They sometimes obtain five shillings for a small bottle of this oil.

The hedgehog possesses capabilities of education, and is sufficiently intelligent to appreciate kind treatment. Captain Brown states that, 'In the year 1799, there was a hedgehog in the possession of Mr. Sample, of the Angel Inn, at Felton, in Northumberland, which performed the duty of a turnspit, as well, in all respects, as the dog of that denomination. It ran about the house with the same familiarity as any other domestic quadruped.'

Assuming that hedgehogs are what they were a hundred years ago, the inference to be drawn from the above story is, that by proper training and humane treatment, our prickly-coated client could be taught to perform many other useful duties in the service of man, providing they were not too great for its mental and physical powers. It is certain this small and harmless animal, much as it has been, and may now be, the object of man's antipathy, is by no means devoid of intelligence, nor of affection. A friend of ours has a dog, a cat, and a hedgehog, who all take their food together from the same dish. The hedgehog evinces the greatest confidence in its canine and feline companions.



CHAPTER XV.

NOCTURNAL RAMBLERS ON THE LOOK-OUT.



IF, as the poet says, 'night is the time for rest,' be true, it is equally so that 'all rules have their exceptions.' While human beings should be—and thousands of different animals and insects are—actively engaged in performing their duties by day, and then at night seeking rest and shelter in their respective homes, there are many whose habits are the very opposite of those referred to. Night is their time for work and roaming about. Their love of seclusion by day, and their predilection to indulge in nocturnal rambles, are both owing to their peculiar organizations, dispositions, and necessities, to some of which we shall briefly refer.

Before doing so, let us imagine the day has passed, the sun has gone down on his vermilion car in the far west, the gentle wind has sung its own lullaby, the stars, which hang like golden lamps from the concave of the heavens, glitter their mild light upon the now hushed world and upon us, as we stand by the side of a copse or thick wood, intently listening for some sound, and watching for the appearance of something we anxiously expect to hear and see.

The deep silence is at length broken by a rustling sound among the dried grass and leaves, or it may be by the crackling of dead twigs. In a few moments we see emerging from the wood, slowly and cautiously, one of our nocturnal ramblers, commonly known as the badger. He looks up and around him, sniffs the cold air, and seems to be turning over in his mind the course he shall pursue, and the direction he shall take, but withal determined to do something of a

thoroughly practical character, an object for which he is on the look-out.

The badger is a native of England, and is of great antiquity. Fossil remains of it have been found and declared to be identical with the present race of badgers. Professor Owen says, 'The badger is the oldest species of mammalia now living on the face of the earth.' If so, he claims our respect and special notice, as well as to be regarded as a wonderful curiosity. Badgers were at one time numerous in England,



The Badger.

but are now, like many other kinds of animals, becoming very rare.

The badger has very short legs, and a rather thick body, which almost touches the ground. In walking it treads on its heel, like the bear. Its movements are clumsy and awkward, giving it, in the dusk of the evening, or the pale star-light, a very singular appearance. The usual length of this animal is about two feet, the tail not more than six inches, and the hide is thick and tough, which renders it impervious to the sting of bees and wasps, to whose honey it is very partial. The eyes of the badger are small, and are placed in a black stripe which begins behind the ears and runs tapering towards the nose. The upper parts of the body are of a sandy-gray colour, the other parts are of a deep black. The legs and

feet are very thick; the latter are furnished with five toes each, the fore-feet have claws, and the muscles of the fore-legs are well developed. It has a strong bone in its cartilaginous nose, with which it loosens the soil.

The badger is a burrowing animal, and its capacity for this work is so great that it can in a very short time make itself a home, where it can live, sleep, and rear its young. Its organization is in all respects so well adapted for mining operations, that this animal may be considered to be one of the best four-legged excavators to be found in this or in any other part of the world.

The female badger takes the most prominent part in the arduous labour of making the burrow. The male may do a little, but he often lies down to rest, and seems half indifferent to what is going on, while his partner is working like a slave; but whether this arises from constitutional laziness, or from a lack of forethought and foresight, may be difficult to determine. There can be no doubt, however, that the energy, industry, and concern exhibited by the female in this work arise from her strong maternal instinct, which teaches her that she may soon become a mother, and that she will require a home and shelter for her future young.

If the nest of the badger does not display the systematic arrangement of the ant's nest, nor the geometrical skill of the cells of a beehive, and if it is deficient in the engineering intricacies which characterize the fortress of the mole, it is nevertheless curiously contrived, and made comfortable by well-dried grass, as well as having ingeniously constructed sinks, or larders, in which its occupants can deposit any remnant of food after a meal is over. This plan speaks much in favour of the economy of badgers. In its adoption they appear to recognise the truth of the old maxim, 'Waste not, want not.'

It has been supposed that the offensive odour this animal gives, arises from its burrowing into graves and devouring human bodies. This is an error which anyone may prove by visiting the badgers' house in the London Zoological Gardens, where the olfactory nerves would encounter as much unpleasantness as if brought in close contact with wild badgers. The odour referred to is from a secretion contained in an apparatus the animal carries in its own body, and which no

doubt has been given to it as a protection against larger and stronger animals.

The badger is not so carnivorous as some animals are that feed on flesh. Although it has a taste for snails, worms insects, and frogs, and will procure them if it can, it will nevertheless be contented with roots and fallen fruits when the other savoury morsels are not obtainable.

Badgers show the power of instinct in a marvellous degree. It is recorded that two young badgers were once taken and put into a paved courtyard, and that they examined every part of it for a favourable spot in which to sink their burrow, but without success. The walls were then examined, apparently with better success. The female found a wide chink she imagined suitable for their purpose, but just too high for her conveniently to reach and work at.

What was to be done? Shall this favourable opening be abandoned? 'No,' they seemed to say; and, as if they had reasoned the matter out, and could see a way out of the difficulty, the male badger lay down, and the female, standing upon his body, began to work at this favourable-looking chink in the wall. It was, however, of no use, as the solid masonry of the wall defied her best efforts to penetrate it, so they had to give up their object in despair.

It appears, however, that the owner of these animals, who had seen all that had taken place, came to their assistance by ordering a load or two of soil and stones to be placed in the courtyard. The two little captives set to work in good earnest to make a burrow, which they soon succeeded in doing. They then formed a home in the centre of the heap of soil; there they were hidden during the day, and it was only after night had set in that they came out to have a look round, and to partake of the food which had been provided for them and placed near the entrance of their burrow.

From what has been stated, it is evident that although animals may be deprived of their wild freedom, and subjected to the influence of man, as well as being made dependent upon him for subsistence, they never entirely lose their instinctive power or principle, with which they are all more or less endowed. It shows itself in some way or other to the last moments of their lives. Cowper, in referring to this subject, says:

> 'In chinks and holes
> Ten thousand seek an unmolested end,
> As instinct prompts, self-buried ere they die.'

Stupid as badgers are considered to be, they are susceptible to human influence and kindness, and can be easily tamed. The female badger shows not only great natural instinct in providing a home for her young, but also strong maternal solicitude for their safety when menaced with danger.

It is much to be regretted that this animal, naturally harmless and timid, should have been made to pander to the brutal propensities of cruel men, as at one time was the case. We refer to badger-baiting by dogs, a sport very prevalent in London and its vicinity some years since. Taplin informs us that then the Metropolis had a constant supply of badgers from the woods of Kent, Essex, and Surrey, and that the most abandoned miscreants, with their bull-dogs and terriers, from every extremity of the town, crowded to the exhibition.

The cruel practice alluded to has, however, been made, by the instrumentality of the Royal Society for the Prevention of Cruelty to Animals, an offence at law. It is true the badger is not in the Parliamentary list of protected animals, but the dog is; and as it is an act of cruelty punishable by law to set a dog to bait a badger, this animal has the benefit of the law passed for the protection of the dog.

Let us hope that the boon of legal protection shared in by our nocturnal rambler may ere long be extended to all other animals. The end will, no doubt, be attained by the diffusion of a knowledge of the life and habits of animals generally, and especially by the organization of 'Bands of Mercy,' whose object is to educate the young in the principles of humanity.

The Fox

is another nocturnal rambler: a very close neighbour to the badger, and of similar habits, but far more daring, ingenious and cunning in the plans it adopts to accomplish its objects. On account of its propensities, in which it freely indulges, this animal has earned for itself but an indifferent character. We hope, however, to adduce some extenuating circumstance in its favour, and to show that it possesses, at least, some redeeming qualities.

The fox family is a large one, and is found in almost every

country, especially in northern climes. It belongs to the class mammalia, order *Feræ* and family *Felidæ*.

Mackenzie says: 'There are three varieties of foxes in this island, differing from each other more in form than in colour, which is mostly a tawny red. The greyhound fox is the largest, and is chiefly found in the mountainous parts of England and Scotland. The mastiff fox is rather less, but his limbs are more strongly formed. The cur fox is the least, but most common. He lurks about the outhouses of the farmer, and carries off all the poultry within his reach.

The eye of the fox is of a lively hazel colour, very significant and expressive. He seems greatly to admire his bushy tail, and frequently amuses himself by catching it as he runs round. In cold weather when lying down he folds it about his head. The fox sleeps soundly; and, like the dog, lies in a round form. This animal sleeps much during the day; for the night is the season of its active depredations. The female has from three to six young ones in a year, which she produces at one time. They arrive at maturity in about two years, and live about fourteen years.

Foxes were at one time included, as well as wolves and jackals, in the dog tribe, but are now considered a distinct genus.

The fox, like the badger, is a burrowing animal. It often, however, contrives by sheer stratagem to take possession of the burrow and home of the former animal, who is compelled to yield to the invader and to make for itself another home somewhere else. When the fox selects the place for his future residence, and constructs it himself, it is generally near the edge of some wood, between large stones, or among the roots of trees, and at no very great distance from a farmhouse.

From his domicile thus situated he listens to the crowing of the cock, and the cackling of the domestic fowls; then, concealing his approaches, he creeps stealthily along, attacks his prey, and seldom returns without his booty. Poultry, pheasants, partridges, small birds, leverets, and rabbits are his favourite objects; but he is also fond of certain berries and fruits, and can occasionally make a meal of field-mice, frogs, newts, etc.

Owners who are deprived of their property in the way described, may not hesitate to denounce the fox as a crafty, dishonest fellow, who on this account should be, by any



means, unceremoniously put to death, and the whole race exterminated.

But while, according to our notions of right and wrong, we are bound to admit that the saying 'Honesty is the best policy' is not to be found in the fox's catalogue of observances, we assert that the marauding and thievish proclivities of this animal do not constitute a justifiable reason why it should be cruelly treated, or its family totally destroyed.

But some may say, The fox is destructive of what is intended for man's use only, and which he has an exclusive right to enjoy. But we would ask, On what is this exclusive right of man founded? Does he not frequently appropriate for his own pleasure and profit some of the produce of the earth, never intended for him alone?

Has not the bountiful hand of Nature planted her flowery blessings in our gardens, meadows, and orchards, for the benefit of bees, and myriads of other insects who find their food in them, and draw from them the nectar they contain, and for which they labour diligently, and are in their organization so admirably adapted to collect?

And yet man cuts down thousands of beautiful flowers, most of them richly laden with cargoes of life-giving and sustaining properties to these tiny members of the animal kingdom—packs them up and sends them to our markets, where they are soon disposed of. Their beauty, however, quickly fades, their perfume departs, and they die, and are then cast away as being of no further use either to man or to insects.

It may be said that flowers enough remain to adorn the earth. This may be so, and it may also be asserted that, reckoning up the pheasants, fowls, and other live stock that have been purloined by our fox-ramblers, a sufficient supply has remained for the needs of man.

The fox does not rob because he would annoy man, or deprive him of any luxury, but to satisfy the cravings of appetite, which is as natural for him to try to do, as it is for all other animals to do. As the fox is not acquainted with the conventionalities of commercial life, we cannot strictly consider him to be either dishonest or dishonourable in his actions, because in them he is simply controlled by the promptings of instinct and the necessities of his nature.

It should also be remembered, that the needs of the fox-cubs—left in their underground home, not yet being able to go abroad to seek food for themselves—and also the affection and concern the fox-parents feel, act as a strong incentive to the latter to be daring and crafty, and to run almost any risk to obtain the sustenance their progeny require.

As we are morally bound to do justice even to foxes, we will now see what redeeming qualities we can find in them, as a set-off against the bad name with which they are almost universally branded.

We have already referred to the parental solicitude foxes evince in providing food for their young, and we may here mention that they usually make their subterranean retreat as comfortable, convenient, and safe as fox ingenuity can devise and their mechanical skill can accomplish. They have been known to make for their cubs a bed or nest of feathers.

The mother-fox nurtures her offspring with the greatest tenderness, watches them with anxious care, and when they are menaced by danger, warns them by a peculiar cry, which they not only understand, but obey.

If foxes have reason to believe their home has been discovered, and that it may be invaded, and themselves captured, they will, at nightfall, leave their old lodgings, take their cubs with them, and wander on until they meet with a place they may think suitable for their future residence.

Captain Brown says: 'It is in favour of the fox that it seeks its prey singly, not like the wolf associating in packs, so formidable as to render its destruction indispensable to safety. . . . Sometimes when pursued, the fox will take up her cub in her mouth, and fly with it till exhaustion and terror overcome maternal affection. When attacked with her offspring in her habitation underground, she will fight with the strongest terrier, with a determined if not successful ferocity. Though a solitary animal, it is known to manifest an interest in one of its own species. On one occasion two foxes resisted the attempt of a person to pass by a certain road with great fierceness; nor could he perceive the reason till, having procured assistance and driven them away, he found a little farther onward a third fox, which they doubtless wished to defend, it having got so entangled among some branches of a tree as to be unable to extricate itself.'

Does not this simple story convey a lesson to those men who, although they condemn the fox, and boast of having a superior nature and higher qualities than he possesses, have been known to leave a fellow-creature to his fate when he has been overtaken by difficulties, affliction, and misfortune, and had not the power to help himself? The fox who sympathizes with another fox in distress is, in this respect, a far nobler animal than the coward who, in the time of need, deserts a friend or human brother.

Reverting to the craftiness, or cunning the fox exhibits in many of his actions, we assert that the end justifies the means, particularly as it relates to the stratagems he resorts to while being hunted, which, as well as providing food and protecting his young, have special reference to the support and preservation of his life. And is not life as sweet and precious to the fox as it is to any other animal?

Before relating a few anecdotes of fox ingenuity and fox-hunting, we may notice that the odour emitted by this animal is very strong, and equally offensive as that which proceeds from the badger. It arises from a secretion contained in some glands near the tail. Whatever it touches it clings to with marvellous tenacity. It is almost impossible to get rid of it. Mr. Wood tells us that 'an old labourer captured a fox for having killed some of his fowls, and confined it for about twenty minutes in an outhouse. The tell-tale scent remained in the shed for weeks.' It is this scent which enables the hounds to follow the fox in the hunt. Of this the fox seems to be fully aware, as he will often adopt the most ingenious plans to throw the dogs off the scent.

Although foxes are sometimes suddenly started from their covers, thereby lessening their chances of escape, it is now and then their good fortune to be sufficiently forewarned and to have a good start of their pursuers. A fox with this advantage will run continuously for a mile or two and then stop. After assuring himself that the hounds are still far behind him, he will return on his own track, probably for about a quarter of a mile, then make a clear spring of several yards sideways of the line of scent, and he will then run, it may be at right angles, as fast as he can, getting a considerable distance off before the dogs reach the spot where the fox had broken the scent. The hounds run on to the extreme end of

the track, where they lose the scent, become baffled and confused, hesitate as to what course to take, and in this way lose much time. Reynard is, however, benefited by this *ruse*, as he manages to get clear out of the way, and for that time, at least, saves his life.

When hotly pursued, foxes have been known to take refuge in cottages and other buildings, on to the roofs of which they have sometimes climbed. The writer remembers a fox, closely pursued by the hounds, finding his way into the scullery of a gentleman's house, and getting into an open cupboard close by the kitchen-maid who was washing up dishes. The hounds followed. The poor panting and exhausted animal was easily captured, and then met with an ignominious fate, for he was literally torn to pieces. On another occasion, a fox, sorely pressed by the Berkeley hounds, jumped over a fence into a garden, and then sought refuge in a clothes-basket standing close by a female who was hanging up some sheets to dry. We read of a fox hiding himself in a bed, and of another immersing himself in a pool of water up to the very snout, holding on with his teeth to a willow-bough hanging over the water. This was done in both cases to evade their pursuers and to save their lives.

In 'Anecdotes of the Animal Kingdom,' it is stated that, 'On the 28th of October, 1815, the hounds belonging to the Newry hunt started a fox at Tamary . . . . .' After sundry adventures, it appears that reynard mounted the roof of a cabin near a turf-stack, in which position he was seen by an old hound, who followed him up to his elevated position. The fox, however, 'dropped down the chimney like a fallen star into a draw-well. The dog looked wistfully down the dark opening, but dared not pursue the fugitive . . . . . The fox, half enrobed in soot, had fallen into the lap of an old woman who was gravely smoking her pipe . . . . "Emiladh devuil!" said the affrighted female, as she threw from her the red and black quadruped. Reynard grinned, growled, and showed his fangs. He was then taken alive by a gentleman of the name of Gordon.'

Many similar instances of the dexterity shown by the fox when being hunted might be adduced; but are not those we have given sufficient to convince us that the fox, in all the plans adopted by him, has his own safety in view? Hunting

is to the fox a matter of life and death. What, then, becomes of the fallacious idea that this animal, as well as the men and dogs who pursue it, derives pleasure from the chase? It is surely inconsistent with reason, nature, and the whole circumstances of the case, and has therefore no foundation in truth.

We are informed by Jesse, in his 'Country Life,' that a large fox was on one occasion run to earth, in Kent, dug out, and then taken to Westmoreland. During the next season, he was seen again in Kent. This occurred twice over. The fox had travelled on foot the whole of the distance both times.

Reynard evidently preferred Kent to Westmoreland, but for what reason it may be difficult to determine. Kent may have been his birthplace where he had spent the days of his cubhood, or even the whole of his life, during which he had familiarized himself so much with the scenery, woods, fields, and farmhouses of that county that he felt for it a strong attachment. But there probably was a stronger reason for this preference. His fox-mate and young ones may have been there, banishment from whom made him unhappy, and therefore he must return to his fox family.

But apart from these suppositions, we pause to inquire how this exiled fox, unaided, found his way back from Westmoreland to Kent? By what influence was he guided, or by what power was he able to surmount all the difficulties of such a journey? Are we to conclude that this fox, as well as cats and dogs who do similar things, are alike endowed with a sense not possessed by man, and by which they can accomplish what he would fail to do?

Whatever it may be, one thing is certain, that the fox, in the journeys he performed, evinced great force of will, much perseverance, powers of calculation, amazing intelligence, and a large amount of thought and prudence, as he would have to be constantly on his guard against his enemies, who no doubt everywhere abounded.

Great a delinquent as the fox may be, he is not, after all, an unmitigated villain, nor totally depraved. He is susceptible to human influences, and may be made, by proper care and kind treatment, serviceable to man.



CHAPTER XVI.

QUAINT NEIGHBOURS AND THEIR SHAGGY RELATIONS.


LIMBING the rugged slopes of the lofty mountains of Wales, standing on dangerous precipices, and leaping from crag to crag, may be seen numbers of animals known as common goats, and to whom is attached a vast amount of romantic interest.

For the sake of variety, we designate these animals the 'shaggy relations' of those of their own kind tamed by man, whom we may call 'Our quaint four-footed neighbours,' and who, so far from being injuriously affected by the artificial conditions and comparative restraints of civilized life, appear to be contented with the limited range afforded them in our fields, gardens, lanes, orchards, and farmyards; they may sometimes be seen in the streets of our crowded towns, picking up any food they can find, or making their way amongst human beings, in whose presence they seem to be quite at home as well as in that of our domestic animals.

Like many other kinds of animals, the goat family is widely distributed, being found in nearly every country of the old world; and although there are not less than twenty-five varieties of them, they present, in their structure and habits, many points of resemblance, but there are others in which they differ. One of the most useful and famous is the Cashmere goat, of whose soft wool growing next to the skin the beautiful Cashmere shawls are made. Baird states that, 'under the Mogul Emperors, work was found for 30,000 looms.'

'The Syrian and other goats in the East are often black, and a species of cloth is made from their skins having the same colour. This is the article commonly used by the Arabs

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for covering their tents, and a Bedouin encampment of this sort forms a very beautiful part of a landscape.'

Goats are frequently referred to in the Scriptures; and 'goat's hair' is mentioned in the catalogue of offerings for the Tabernacle; and at the present day it is an important article of trade.

These animals belong to the 'class Mammalia, order Ungulata, family Bovidæ, and are characterized by having the horns subangular, recurved, compressed, seated on the crest of the forehead, and by their union covering the top of the head.



Cashmere Goat.

They butt with their heads, first raising themselves on their hind legs, and then coming down sideways against their enemies. The males are generally bearded, and have a strong stench.'

'The common goat may be taken as the type of the family. It is a lively and sportive creature, impatient of confinement, fond of solitude and of climbing rugged eminences. It is eminently curious, capricious, and confident.'

The *Animal World* says: 'Naturalists have found it difficult to point out precisely the difference of physical conformation in sheep and goats, and some have therefore distinguished them more by their tempers and dispositions—in most respects manifestly opposite. A white, hornless breed of goats, known

in Wales, differs from a sheep only in its hairy fleece and indications of a beard.'

The same journal, referring more particularly to the wild goats of Wales, says: 'Their flourishing condition in the Principality at one time, may be imagined from the size of the horns of the Cambrian he-goat mentioned by Pennant, which were three feet two inches long, and measured three feet from tip to tip.'

The goat is essentially a browsing animal, being very partial to buds and the young leaves of trees, which it is sure to feed upon if it has a chance to do so. It was no doubt on this account, 'as an enemy to the vine,' that the goat was formerly sacrificed to Bacchus. When modern witchcraft was supposed to be rife, the goat figured, not only as the conveyance on which witches flew through the air to their diabolical festivals, but as the shape in which Satan himself exhibited his person to his votaries. Such superstitions no longer exist;' and, we may add, because this animal is better understood now than it was even a few years since.

We quote the following from Partington's 'Cyclopædia:' 'In feeding, goats are very indiscriminate, and many plants, which are not only shunned by other ruminating animals, but act as poison to them, are not only eaten with impunity, but relished by them. There have been instances in which tame goats have chewed tobacco; and, in the wild state, they eat the most bitter and narcotic plants, such as euphorbium, hemlock, henbane, and even digitalis, without suffering any injury. Few plants are more disrelished by cattle than the common ragweed, and therefore the pastures on those lands in upland and humid situations are very much infested by it; but goats clear it off if allowed to browse the plants before they come into flower.'

The goat, like the donkey, will feed on very simple and inexpensive food. This enhances its value very considerably; and taking into account its uses to man, offers a great inducement to every one to keep a goat, if room and proper accommodation can be found for it.

Mr. Martin Doyle, in his 'Farmer's Manual,' writes: 'The weeds that grow by the wayside and in the fields, the waste of a garden, turnip or potato peelings, heath or hay, will feed these creatures, which eat any vegetables offered to them.

The goat will eat herbs which the sheep rejects unless it be almost starving; it is fond of meadow-sweet, and will even feed on common hemlock, which is poisonous to the cow.'

'Goats in their wild state, when in search of food, are often exposed to great dangers. It is almost terrifying to see them among the mountains, standing, as they often do, on some crag, point of a rock, or on the narrow ledge of a deep precipice at a considerable elevation, and expecting every moment to see them fall and to be dashed to pieces. But such is their structure, particularly that of their feet, which are slightly hollow, enabling them to hold on to any edge or roughness on the rock, that they seldom meet with an accident in climbing or jumping in those dangerous and elevated positions.

This agility and activity are not lost in the domesticated condition of these animals. There are performing goats, and some of their feats have been both amusing and wonderful. We have read of one that had been taught to stand on six cylindrical blocks of wood, each about six inches in length, and placed one on the other, the top block being only about two inches in diameter. With its four feet within this small compass, the animal has remained during the playing of a tune by its exhibitor. Could a human actor perform anything more wonderful?

Brown says: 'The goat is in all cases courageous and sportive—indeed, of so frolicsome a disposition, that the ancient mythology gave to Pan, the personification and presiding deity of rustic festivity, the limbs and shaggy covering of the goat.'

The kids of goats are as full of fun and fond of play as lambs and kittens are. Their racing, jumping, and rising perpendicularly from the ground, as they often do, are most amusing to witness, and seem to indicate their life to be a bright and happy one.

Goats are often partial to soldiers, and in some regiments are kept and treated as pets. The 23rd Royal Welsh Fusileers always keep a goat in their barracks, and whenever one dies Queen Victoria presents them with another. A fine old white goat belonging to the above corps had a medal put on him at the close of the Crimean war, in commemoration of his great attachment and fidelity to the regiment to whom he belonged, and whom he always accompanied wherever



Goat and Kids.

they went, and in whatever part they took in that campaign. To them he was true in life, and never forsook them in danger nor in the prospect of death. He well deserved the medal.

We have often seen the soldiers, some years since, quartered in the Chelsea barracks, marching through the streets preceded by a military band, in front of whom, and by the side of the drum-major, marched a venerable-looking goat, apparently very proud of the foremost position he was allowed to occupy. It was very interesting to watch the movements of his head and body keeping time with the music, which he always varied when another tune was played.

Animals have often been employed as agents in the dispensations of Providence for the protection, sustenance, and pleasure of man, of which the following story of the 'Refugee and the Goat,' taken from 'Our Four-Footed Friends,' is an apt illustration.

'This refugee was a gentleman, who, having taken an active part in the Scotch rebellion of 1745, escaped after the battle of Prestonpans to the west Highlands, where he was received by a relative of his, a lady, who being, like himself, attached to the Stuarts, was glad to offer him an asylum. But as the search was very strict after the rebels, who, if taken, were executed, it was necessary for him to be concealed where there would be no danger of discovery. He was therefore conducted by one of the lady's servants to a cave in a sequestered part of the mountains, and being furnished with a supply of food for some little time, was left to the care of himself. The only way of entering his retreat was by a small opening, through which he had to creep, carrying his provisions with him, and feeling his way with one hand at every step.

'A little way from the mouth, the cave became more lofty, and still advancing cautiously in the darkness, he presently became aware of something that stopped his further progress. Unable to see what it was, and afraid to strike anything in the dark with his dirk, he stopped and felt carefully around the object, and soon perceived it was a goat with a kid. This would not have been an unpleasant discovery, had he not feared that, the owner following the goat hither, he might be betrayed to his enemies, otherwise she might supply him with nourishment.

'Soon, however, he discovered that she was in great pain,

and then carefully feeling about her, perceived that one of her legs was broken. Fortunately he was not without some knowledge of the treatment of animals; he therefore bound up her leg with his garter, and offered her bread to eat. But her mouth was parched, and she refused the bread; he then gave her water, which she drank eagerly. Deeply interested in his suffering companion, he ventured out at midnight, pulled a quantity of grass, and the tender shoots of such trees as goats are fond of browsing, and carrying them to her in the cave, had the pleasure of finding that she ate them ravenously.

'The goat remained for some time the companion of his solitude, and he had the satisfaction of seeing, or rather knowing, that she was rapidly recovering.

'What a joy and comfort her companionship was to him nobody can tell, unless they have been in the same situation, or like Robinson Crusoe on his island. The goat also became greatly attached to him.

'At this time, it happened that the servant to whom was entrusted the secret of his retreat fell sick, and it was necessary to send another with provisions. The goat, on this occasion, happening to be near the mouth of the cave, opposed the man's entrance with all her might, butting at him most furiously. The gentleman in the cave, hearing an unusual noise, went forward a few yards, and then receiving the usual watchword from his new attendant, came to the entrance, and after a few words of interposition the faithful goat permitted the man to enter. So resolute was the animal on this occasion, that the gentleman felt convinced she would have died in his defence.'

The following anecdote is taken from 'Our Children's Pets':—'On the trunk of a tree thrown over a rushing stream, that foamed as it dashed among the rocks below, two goats once met, each anxious to go his way. But how were they to manage? For if they tried to pass each other, one, if not both, must fall, and die on the precipice beneath. Now these two goats were as wise as many bearded men, and putting their heads together, they stood still a short time, as if thinking which was the best thing they could do. Their plan was soon made. One goat lay quietly down on the tree, and allowed the other to leap over it, which it did quite safely; and both the clever creatures went on their journey.

'Oh, what a lesson is taught by these wonderful goats! If we are placed suddenly in danger, let us try, like the goats, to be as calm as possible, and consider what is the best thing to be done . . .'

If the above story be true, and we see no reason to doubt it, it is evident that the goats referred to possessed considerable intelligence, and had some means of communicating their ideas so clearly one to the other, as to come to a mutual understanding relative to the best plan to be adopted by them of getting out of the difficulty by which they had been overtaken. Surely these goats talked to each other.

Whether in the wild solitude of mountains, or in a domesticated state, the goat shows great affection for its young, and will often defend them at the risk of its own life. Instances of this kind are by no means rare. The voracity of the fox is not confined to young ducks, geese, or poultry, as it has been known to attempt to seize the young of the goat. The maternal affection, instinct, and ingenuity of the mother goat have also been known to be equal to the occasion, whenever the fox has given her an indication of his rapacious proclivities. This will be seen in the following anecdote related by Captain Brown.

'A person having missed one of his goats when his flock was taken home at night, being afraid the wanderer would get among the young trees in his nursery, two boys, wrapt in their plaids, were ordered to watch all night. The morning had but faintly dawned, when they sprung up the brow of a hill in search of her. They could but just discover her on a pointed rock far off, and hastening to the spot, perceived her standing with a newly-dropped kid, which she was defending from a fox. The enemy turned round and round to lay hold of his prey, but the goat presented her horns in every direction. The youngest boy was despatched to get assistance to attack the fox, and the eldest, hallooing and throwing up stones, sought to intimidate him as he climbed to rescue his charge. The fox seemed well aware that the child could not execute his threats; he looked at him one instant, and then renewed the assault, till, quite impatient, he made a sudden effort to seize the kid. The whole three disappeared, and were found at the bottom of the precipice. The goat's horns were darted into the back of the fox; the kid lay stretched

beside her. It is supposed the fox had fixed his teeth in the kid, for its neck was lacerated; but when the faithful mother inflicted a death-wound upon her mortal enemy, he probably staggered and brought his victims with him over the rock.'

The following curious story appeared some years since in one of the leading London newspapers. 'The King of Ashantee, during the late war, consulted his fetish men in order to ascertain from them what his future fate was likely to be, and the result of his opposition to the English. He therefore, after having resorted to various means without success, ordered two he-goats to be selected and brought before him, one entirely black, the other of a spotted-white colour. This was done, and after due fetish ceremonies had been performed over the two goats, they were set at each other. The white goat easily overcame and killed his opponent. Koffee Calcalli, after this test, was satisfied that he was doomed to defeat at the hands of the white man. He immediately sent the embassy to Sir Garnet Wolseley to sue for peace.'

A female goat belonging, we have been told, to a dairyman, living in Artillery Buildings, Westminster, may at the present time be seen nearly all day long threading her way in and out amongst the omnibuses, cabs, and other vehicles at the Victoria Railway Station. She seems to be good tempered, and very familiar with every one who may notice her with a pat or a gentle word.

But as goats know their friends and can appreciate kindness, this one is particularly attached to certain cabmen who often give her a little corn out of their horse's nose, or feeding bag. Should any of these 'cabbies' be absent when she arrives she patiently waits and watches for their return. As soon as they come in and have settled with their fare, she is there to greet them, and at once, in her goatish kind of way, indicates to them that she will be glad to take her little allowance of corn from the bag as usual. Having, in this way, picked up sufficient food, she then leaves off business, and walks homewards in a very leisurely manner, apparently perfectly satisfied with the success of her foraging enterprise amongst those large numbers of men and horses who may be usually seen at the above busy Railway Terminus.



CHAPTER XVII.

OUR FURRY FRIENDS AND THEIR ANCESTORS.

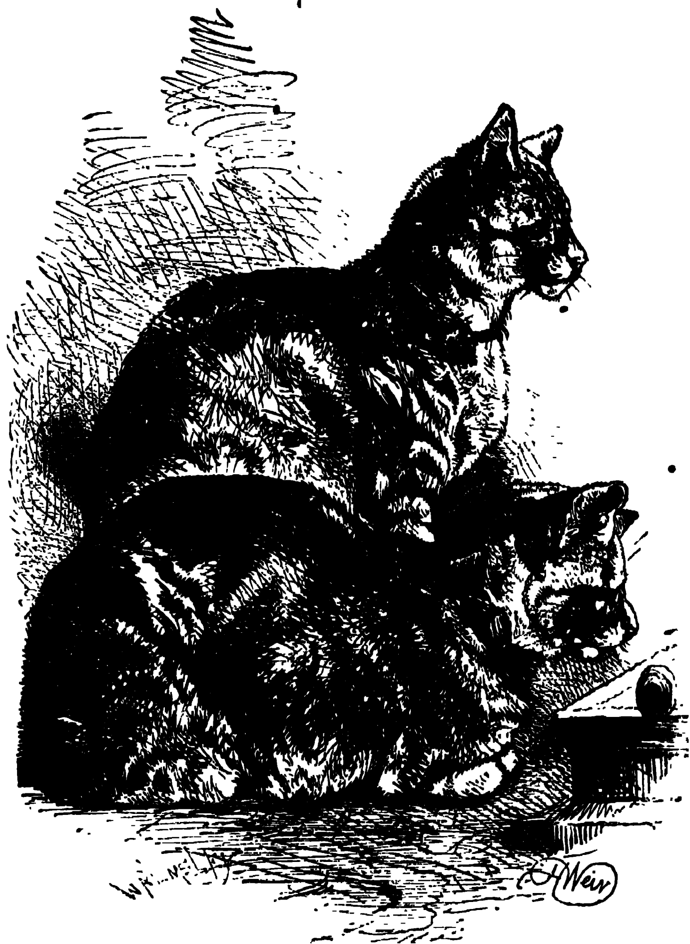
ITH the middle and humbler classes of society in this country the domestic cat is so popular that many people think all dwelling houses without one lack that cheerful, social aspect which the presence of this animal always gives to home, and because its habits, as well as its mute expression of intelligence, afford great interest to almost everybody, especially to those who are much isolated from human friends.

We have often heard persons say: 'I wouldn't be without my cat for all the world; it helps to pass away many an hour pleasantly, which without its companionship would seem long and feel very irksome.' This, no doubt, is quite correct, and we must admit that cats do, under the circumstances related, all with which they are credited; but at the same time we can hardly regard our furry friend as a paragon of perfection.

We will, however, in the description we are about to give of its structure, habits, uses, intelligence, and its many peculiarities, endeavour to do it justice.

Boys, as a rule, prefer dogs to cats to make pets and companions of; but the latter animals are the favourites of the girls. We, however, specially invite both to read carefully what this chapter contains, not only for their own sakes, but for that of these household pets.

Although cats are so numerous that we can seldom walk through a street, or enter a house, without coming in contact with one or more of them, there is reason to believe they are neither thoroughly understood, nor properly appreciated for their great utility to man. It may be true that cats exhibit some objectionable traits of character, temper, and disposition;



nevertheless, we hope to show that they possess, at least, some commendable qualities.

As it is necessary to know something of the *locus standi* of the cat in the Animal Kingdom we shall briefly refer to,

1. The Cat Family.

Cats constitute a very large family. They are rapacious animals, and belong to the order Feræ, class mammalia. There are but few countries which do not contain one or more sub-families of them. They are very numerous in Africa, India, and other countries in Asia, and comprise lions, tigers, leopards, lynxes, etc., all of which are thoroughly carnivorous, and in their organization fitted, in an eminent degree, for rapine and tearing of flesh. These are the wild relations of the domestic cat, which, though differing from them in some of its habits, has many points in common with them.

The wild cat was at one time very plentiful in England, and is still common in the North of Scotland and Ireland. It is larger than the domestic cat, with which it sometimes breeds. It is very fierce and destructive, and makes great havoc among poultry, lambs, and kids.

2. The Structure of Cats.

If in all the means we use to bring about certain results we were to study adaptation more than we do they would, no doubt, be followed by fewer failures than they now are. The more we look into the laws and arrangements of nature, and into the structure and necessities of animals of all kinds, as well as at the peculiarities and differences of their conditions and habitats, and especially at the varied means they must employ to obtain sustenance, the more we shall see the perfect adaptation of everything to the end designed by the Creator.

This is seen in the structure of the cat, who, being a carnivorous animal, has a mouth, jaws, and teeth just fitted for tearing flesh. It has six cutting teeth in each jaw, and three kinds of grinders. The muscles of the jaws are so powerful that the animal can even crush bones. The tongue is thin, long, and flexible, and covered with prickles, so that it can strip every particle of flesh from the bone by licking it. In lapping milk, or any other liquid, the cat turns its tongue downwards.

The senses of hearing and seeing are well developed in the cat. The organism of the eye is, however, peculiar. During daylight, the pupil of it is nothing more than a narrow dark line running longitudinally, but when night comes on it expands into a globe, and so on this account it is supposed the cat can see the prey it tries to secure during its nocturnal hunts. Whether this be the case or not, it is well known that a peculiar brilliancy is seen in cats' eyes during the dusk of the evening, and when the pale light of the stars shines upon the earth. The reason why the eyes of the cat shine in the dark is supposed, by some, to be the existence of a carpet of glittering fibres called the *tapetum lucidum*, which lies behind the retina, and is a powerful reflector. In perfect darkness, no light is observed in their eyes, a fact which has been established by very careful experiments, but nevertheless a very small amount of light is sufficient to produce the luminous appearance in them.

The lips of the cat are soft; on each side of the upper lip spring those long hairs usually called 'cat's whiskers.' These hairs are organs of touch, and are attached to a bed of close glands under the skin, and each of these long hairs is connected with the nerve of the lip. The slightest contact of these whiskers with any surrounding object is thus felt more distinctly by the animal, although the hairs of themselves are insensible. They are no doubt of great service to the animal, particularly in the dark, because they indicate to it any obstacle which, unseen, may present itself to the passage of its body. Thus, in watching for its prey, the cat is forewarned not to make a noise by pressing on branches which may lie in the way, but to proceed as silently as possible, this being essential to success.

The soles of the cat's feet are covered with hairy pads, which are like soft cushions, to enable it, no doubt, to walk and run with an almost noiseless tread.

Cats are great climbers; they have therefore a litheness of body—feet and talons just fitted for the purpose of climbing trees or walls, and holding their prey when they have seized it, which they can do very securely.

Bingley says, 'The fur of the cat, being generally clean and dry, readily yields electric sparks when rubbed; and if a clean and perfectly dry domestic cat be placed, in frosty weather, on

a stool with glass feet, or be insulated by any other means, and rubbed for a little time in contact with the wire of a coated phial, the phial will become charged.'

It is no doubt this dryness of its fur that causes a cat to wash its face, and to lick its body. The air, previous to a storm, is charged with the electric fluid, to which this animal is very sensitive. The itching sensation produced by the electric fluid on a cat's body it tries to allay by rubbing and licking itself, but which it cannot do until the electricity has passed away.

3. The Tenacity of Life in Cats.

It is well known that falls and blows, which may do a great amount of injury to other animals, have but little effect upon a cat, which is no doubt owing to the litheness of its body and joints. Its tenacity of life is marvellous—hence the common saying, 'like a cat with nine lives.'

We well remember a poor cat that had the misfortune in the middle of a very severe winter to fall into the pit of a deep ice-house, from which it could not make its escape, owing to the smooth perpendicular sides of the pit. It had been there, it was supposed, not less than three days and nights, when it was discovered by one of the men employed to fill the house with ice. Armed with a stout stick, he descended into the pit, and struck the poor starving cat several times; he then, having stunned it, threw it out among some frozen leaves, where it remained apparently dead for some hours. It, however, revived, and although one of its legs was broken, tried to crawl in the direction of its home, the house of a lady who lived close by. It was taken up by a humane man and carried home. Every attention was paid to it until the broken limb was discovered, when its life was ended as speedily and as mercifully as possible.

4. Curious Notions of the Habits of Cats.

Some people regard certain habits of cats as being useful barometers; for instance, 'When cats wash their faces with their paws, they believe it indicates rain or a storm. If the cat turns her tail to the fire we are to have a hard frost. If the cat licks her tail we are to have rain. If the cat washes her face over her left ear it indicates a visit from a stranger.

If the cat sneezes it means a cold will go through the family. To dream of cats is said to be unlucky, denoting quarrels and treachery on the part of friends.'

5. Origin of the Domestic Cat.

This is involved in some difficulty. Some say it is the wild cat; others trace it to the Egyptian cat. It has, from remote ages, been much esteemed and venerated by the Egyptians; so much so, that when these animals died, their bodies were



Egyptian Cat.

embalmed and placed in the niches of their catacombs. In most eastern countries, cats have always been great favourites with persons in every grade of life. There is scarcely a dwelling in Egypt and Syria that does not contain one or more of these animals. Moslems treat them with great tenderness; and it is said that the prophet Mahomet was so fond of his cat, that one day when it had fallen asleep on his sleeve, he could not bear to disturb it, and therefore cut away the sleeve from his garment and left the animal sleeping.

A well-known story is told of Cambyses, king of the Medes and Persians, who lived 529 years before Christ, that when he led his army against the Egyptians, he gave to each of his soldiers a live cat to hold before him instead of a shield, and

that the Egyptians yielded to the conqueror rather than injure their much-loved animals.

During the late Crimean war, several Zouaves, accompanied by their cats, took part in that campaign. The cats were of Algerian breed, and the training of them appears to have been admirable. They knew all the soldiers, from among whom they could pick out their own masters. In battle, they would take their positions on the knapsacks, and watch every opportunity to jump at the face of an enemy, and to scratch and bite most furiously. The faces of many of the Russian soldiers were so lacerated that the wounds became dangerous, and had to undergo a special kind of treatment. In climbing a rock, the Zouaves would command their cats to lead the way, so that they might take advantage of every foothold pointed out by their trusty and agile companions.

Cats are such great favourites in England, that during the last few years the breeding of many varieties of them has been much encouraged. At the annual cat shows, held at the Crystal Palace and elsewhere, improved specimens of different kinds have been exhibited, and in some instances have been sold at very high prices, especially the prize winners. One cat fetched £50, and others more than a score pounds each. One cat weighed 23 lbs. 2 oz., and another we knew well 24 lbs.

The tabby cat is the most common. We have tortoiseshell cats, black, white, some that are both black and white, others white and grey. We have also the tawny Angora cat, whose hair is long and silvery; and the Persian breed, with soft glossy fur, white underneath, and grey on the back. To these may be added those of mixed breeds, some of which are very beautiful and useful animals.

If further proof were wanted that cats have been great favourites, much thought of, and even venerated, we may mention that the 'Egyptians, considering them an emblem of the moon, placed them upon their *sistrum*, an instrument of religious worship and divination. To slay a cat was death by law; and the Roman soldier who killed one ignorantly and unawares, was torn to pieces by the enraged people in the street.' Baumgarten saw at Damascus an hospital for cats, which was a large building walled round, and said to be full of them.

A lady, much interested in the welfare of these household pets, has originated a 'Home,' in Dublin, 'for Lost and Starving Cats,' on the principle of the 'Home for Lost and Starving Dogs' in London. We must applaud the lady's good intent and humane efforts, and sincerely hope she may, by the sympathy and support of the public, surmount every difficulty of such an undertaking, and succeed in ameliorating the sad and miserable condition many of these poor creatures are forced into by the cruel thoughtlessness and shameful neglect of those who own them.

Cats have had, and still have, friends in the British Parliament. All persons who in any way illtreat them, are liable to punishment, by a law passed in favour of domestic animals. 'The Royal Society for the Prevention of Cruelty to Animals' now advocates their claims to humane treatment, and throws its shield of protection around them. Do not these facts indicate that better and happier times are in store for our furry friends?

Indeed, these times are already being realized by the great majority of cats in England, who are not only well housed and fed, but have indulgences and privileges but rarely extended to other domestic animals.

The character and life of our common household cat are so well described by the author of 'Anecdotes of the Animal Kingdom,' that we quote a part of what he says respecting it. 'The cat is connected with royalty—the head of her family being the lion, the king of the forest—and she therefore leads an appropriate life, having a proper aristocratic indifference to everything which does not minister to her own pleasure. She is much given to hunting, birding, and fishing, and hates all other sorts of exertion.

'When not engaged in the chase after "mice and such small deer," she loiters by the fireside, on chair or sofa, humming a tune in falsetto voice, or feeling with her paw the length of her whiskers. She is a courtier by profession, and loves to bask in the sun.'

She keeps fashionable hours, for she is generally up all night at play, and goes to bed when the sun rises. 'She stands or falls by her own order,' and by the merits of her order she should alone be judged.

6. Ancestors of the Cat, and their Value.

Going back more than 900 years in the history of our own country, we find domestic cats were so scarce and valuable that laws were made to protect and regulate the sale of them. 'The price of a kitten before it could see was a penny—a coin of greater value then than now. After it could see, and until it killed a mouse, twopence; after that, fourpence; and if anyone stole or killed the cat that guarded the prince's granary, he was to forfeit a sheep or lamb.'

The ancient laws of Wales estimated a cat at the price of as much corn as would be sufficient to cover her, if she were suspended by the tail with her forefeet touching the ground.

Camden records a story similar to that famous one of Whittington and his cat: 'How Alphonse, a Portuguese, being wrecked on the coast of Guinea, and being presented by the king thereof with his weight in gold, for a cat to kill their mice, and an ointment to kill their flies, which he improved within five years to six thousand pounds; and, returning to Portugal after fifteen years' traffic, became the third man in the kingdom.'

'In former times cats had a place in the pharmacopeia, sundry medicaments being composed of their head, paws, and liver, for the use of invalids.' The negroes of Jamaica, however, consider them a dainty dish, and so eat the whole body.

7. Intelligence of Cats.

Although in intelligence cats may be inferior to the horse, dog, elephant, beaver, and other animals, they nevertheless possess capabilities of mind of no mean order. Although some people attribute everything done by cats to instinct alone, we think it is an error. Instinct prompts them to perform certain duties under the guidance of their senses only, but does not provide for the many unforeseen contingencies and incidents of their lives. This provision depends upon the exercise of the *intellectual* power with which they are endowed. The actions of these animals show that they have understanding, will, and power of comprehension. Often, when they have found themselves menaced by danger, they have, on the spur of the moment, hit upon some plan to

evade it, and if it has been physically possible, have been successful in doing so.

Cats, like many higher orders of animals, no doubt receive impressions favourable or otherwise, according to the actions, and the tone of the voices of those with whom they are brought in contact, and from which they form for such persons their likes or dislikes as the case may be. They have, at least, sense enough to show confidence in those who treat them kindly, and intellects sufficiently strong to evince a decided objection to those who are cruel to them. Most cats are very tenacious in making friends with anybody. Before doing so, they seem to like to think the matter over, or, to use a common and figurative expression, 'To look twice before they leap once.' In most cases, however, cat friendship, when once formed, is durable, unless forfeited by harsh treatment.

Instances have been known of cats having been taught to perform useful offices to man. It is said that Dante taught his cat to hold a candle in his paw for him while he read, and that he was very proud of his success in making his cat subserve his purpose in the way described. One day when a friend called to see him, he boasted rather exultantly that he had made art and education, in his cat's case, prevail over his natural instincts. To this the friend demurred, objecting to believe the statement unless a test was made to show that it was true. This both agreed should be done pending the decision.

The time came for trial. The friend arrived, and found Dante at his books, and the cat holding the candle as usual, and looking almost as sage as the great poet himself—certainly as calm and collected as a cat could be. The visitor then placed a covered teapot on the table, and scarcely a minute had elapsed before the cat showed signs of disturbance and excitement. The lid of the teapot was removed, when out jumped two or three mice, and scampered off with all possible speed. The cat had already smelt them, now he saw them. The temptation was too much for his sense of duty to his master and his natural instincts to resist, so, sending the candle adrift, and scattering the great man's papers in all directions, he bounded like a deerhound after the mice, who, we believe, just managed to escape the claws and

jaws of their pursuer. The result of the experiment, or test, proved that Dante was wrong in his statement, and that it is very difficult to overcome the natural instinct even of a cat, be its intelligence ever so great.

Bisset, who had great power over animals, trained a dog and cat to go through many amazing performances.

A gentleman, who was at one time connected with the county of Kent Constabulary, has informed the writer that when he was stationed at East Peckham his duties frequently took him a long way from home, to which he very often had to return at eleven and twelve o'clock at night, and sometimes as late as three o'clock in the morning. Whenever this was the case, he was almost invariably met by a favourite white cat, who during a part of the evening had waited, some distance from home, in a field by the side of the road, and from which she emerged when she saw him coming; then ran by his side and accompanied him all the way home; acting as a kind of honorary cat-body-guard or 'terror to evil doers.' This cat was as 'deaf as a post,' which renders her conduct all the more mysterious and interesting.

By what power was she aided? or by what influence was she guided in what she did? It could not be that she had learnt the meanings of certain words or sentences, because she could not hear. Are we not compelled to admit that this cat had sufficient intelligence, or power of mind, to make her observant of the movements of her master when at home, and of the periods of time at which they took place? And may we not also fairly assume that when he was absent, and did not return by a certain hour, the cat would note it, and infer from it that he was out on a late journey, and therefore, as described, would start off to meet him? We think we have in this anecdote a proof that this cat's intelligence enabled it to compare one thing with another—to see what the effects of certain causes would be, and to arrive at conclusions which would prompt its own line of action.

It is, however, very remarkable that much as this cat was attached to the gentleman referred to, when he removed to another residence in a small town not far off, his cat never became reconciled to it, but was constantly unsettled and unhappy, so that in time she became very poor and weak, and literally pined to death.

The *Animal World* gives an account of five travelling cats known as the 'bell-ringers,' by whom their owner made a considerable amount of money by exhibiting them. Five bells were attached to a hoop erected on a stage. To each bell there was a rope. At a given signal the cats would each seize its rope and commence pulling, which they did in regular order, and with so much precision and spirit, that a peal was rung out as if human hands and not cats' claws had pulled the bells.

That cats have perception, and in some measure the power of reason, may be seen in the following anecdote. A cat, equally partial to two ladies, was tested, by each of them holding up a piece of bread the same size above the eyes of the cat to see which it would take first. The cat sat upon its hind legs, eyeing first one piece of bread and then the other, as if trying to hit upon some plan to show her impartiality to the ladies. She did so by seizing the two pieces of bread, one in each paw, simultaneously, and so left the ladies still in doubt as to which of them she loved the most.

That cats are not defective in memory, is evident from the following account taken from Miss Knight's Autobiography. She says, 'An old woman in Ireland had a nephew, a lawyer, to whom she left by will all that she possessed. She happened to have a favourite cat who never left her, and even remained by her corpse after death. After the will was read in the adjoining room, on opening the door the cat sprang at the lawyer, seized him by the throat, and was with difficulty prevented from strangling him. This man died about eighteen months afterwards, and on his death-bed confessed that he had murdered his aunt in order to get possession of her money.'

This story shows that the cat referred to noted the deed of murder as well as the person by whom it was perpetrated—that it retained in its memory the whole circumstance, at least for some days, and that, prompted by a determined will and vindictive spirit, it avenged in the way related the death of its old friend. Surely all these things prove that the cat was endowed with something more than ordinary instinct.

The following story is another instance of cat sagacity, or intelligence. We once knew an old tom-cat who was allowed to remain, during the night, by the warm kitchen fireside. One night, not long after the inmates had retired to rest, they

heard Tom at the outside of their room, mewing as if he wanted to come in. As soon, however; as the door was opened, the cat turned to go down the stairs, and every now and then looked to see if any one was following him. Finding they were not doing so, and that the bedroom door was again shut, as well as hearing a stern voice bidding him to go, Tom renewed his mewing, scratching violently at the door, and ran several times up and down the stairs; but to no effect. Tom, who now gave up his efforts to arouse their curiosity, and to induce them to follow him, quietly withdrew, leaving the inmates to enjoy their undisturbed slumbers. When morning came, the mystery and cause of Tom's strange conduct on the night before was explained. The servant had omitted to shut the back door before going to bed, and in the morning it was found quite half-way open. This the good sense of the cat told him was unusual, and, it may be, wrong, very unsafe, and decidedly dangerous.

There are but few persons, we should imagine, who have not seen the men who exhibit in the London streets trained cats and birds together. What is more tempting to a cat than to make, if he has a chance, a meal of a bird or two? And yet the men have taught these cats to refrain from touching the birds, which we have understood they never attempt to do.

The above facts show that cats are very sagacious and observant, and that they have capacities for learning, remembering, and for performing what they have been taught to do.

8. Attachment of Cats to Persons.

Very many persons believe that cats have always been more attached to the *places where* they have lived, than to those *persons with whom* they have lived. Admitting this to be the case, we have, nevertheless, on record many instances in which cats have exhibited marked affection for their owners.

We know a lady whose father had a favourite cat, which, after his death, she took to a town eighty miles off, where it remained with her about two years. It was then sent back to its old home, and soon became attached to one of the sisters of the above lady, who was there on a visit for a few weeks. On her return to her own residence, more than one

hundred miles off, she took the cat with her. It never evinced the least dissatisfaction with its new and strange home, but seemed to be quite happy, and to 'settle down' comfortably and contentedly at once. In the house it would be near the lady, and in her walks round about it would follow her like a dog. There can be no doubt that all this was entirely owing to the kindness and humanity with which the lady referred to always treated the cat, her feline companion.

A gentleman, living in a suburban part of London, has given to the writer the following information respecting a cat he highly valued on account of his beauty and many excellent qualities. It appears this cat was much attached to every member of his family, but especially to himself. Tom, however, given a little to trespassing, one day got on the railway running close by, and had both his hind-legs cut off. He was soon seen by a man employed on the line. Pitying the poor animal's condition, he tried to take him up, but the cat forbade him to do so. The good man, however, found out the family to whom the cat belonged, and gave them the information of his sad misfortune. The moment the cat saw the wife of our informant, he looked up at her face and mewed very piteously, as much as to say, 'I'm glad you've come; help me if you can.' When she laid hold of him, which she did very tenderly, he made the best effort he could to assist her in getting him away from the scene of the accident. By the time they reached home poor Tom had become very weak. But he soon recognised his master, faintly mewed, and then with an imploring look seemed to ask him to do something to relieve him of his sufferings. Nothing but ending his life could do this, and so it was of course done at once, humanely and mercifully, as it would have been an act of cruelty to have attempted a cure of the broken limbs.

Cats, like men, are also 'born to trouble, as the sparks fly upward.' One day, previous to his accident, the above cat went out by the back door, and over a wall adjoining a large manufactory, in which he had been confined three or four days. When he returned home he was thin, dirty, and emaciated. For many weeks nothing could induce him to venture out of the back door again. He had so far profited by experience and privation that he became a wiser, if not a finer, cat, and therefore kept to his home, where he was better fed and much

happier than in his rovings abroad, until he was overtaken by the accident which ended his life.

9. ATTACHMENT OF CATS TO PLACES.

To love home is, or should be, as natural to us as it is to eat, drink, and sleep. Wherever we may be, nothing in after years can obliterate from our memory the scenes and surroundings of early life; nor yet, when age comes on, prevent those yearnings we often feel to look upon them once more. We are truly linked to the past by ties we cannot sever.

It is even so with many animals, especially with our feline friends, who, as before stated, show marvellous attachment to the homes in which from kittenhood they have lived. And so strong is this preference for them, that often when taken many miles away, they have been known to return to them, and in doing so to have surmounted great difficulties, as well as having run the risk of losing life and limbs.

The following information was given to the author, by a lady who owned the cat we are about to refer to. For some time she and her family lived at Clapham, and then removed to Kensington. The lady took charge of their pet cat, put it into a basket, and then placed it by her side in the carriage, in which position it remained during the whole of the journey. Puss could see neither house, tree, nor any other object outside.

On the following morning, she was at the old home at Clapham, from whence she was taken back to Kensington, but again returned. This was repeated three or four times over before she could be reconciled to her new home. In her journey to Clapham the cat had to pass through busy streets, to cross one or other of the Thames bridges, exposed, no doubt, to many enemies, dangers, and interceptions.

How she found her way to Clapham without a guide, and without having seen a single object of any kind when taken in the carriage, is a problem difficult of solution.

By what particular power, gift, or quality cats are able so unerringly to find their way back to their old homes, natural historians have never been competent to explain. There is something so marvellous in this that we may well pause, and think with less pride and conceit of our own gifts and intelligence.

In traversing the sea, the navigator must have the compass to guide him, and even on land a stranger must be directed by others, or even by guiding-posts; but a cat, a dog, and even birds, have no need either of a compass or guide to traverse an unknown road, or to cross a dreary waste of country, to return to the master and home they love. This is all the more remarkable from the fact that cats have often returned by roads not travelled by them when taken from home.

In examining animal psychology as it relates to cats, there can be no doubt that one reason, at least, why they do not at all times become reconciled to a strange home, is that they have not had proper opportunities of comprehending, to their satisfaction, the whole of its surroundings. So long as mystery veils their minds, so long will they be unsettled and unhappy.

Generally when cats are taken to a new residence, they are put into a room and there kept shut up lest they should escape. This kind of restraint is so very distasteful to them, that the first chance they have of leaving the place they do so. But when they are permitted to go through every part of the building, the rooms within, the yard, outhouses, and garden, on a tour of inspection, they will soon understand, and be able to judge whether they can be happy in the place or not. We venture to affirm that if they are allowed to do as we say, and are kindly treated by those who own them, they will soon settle down, and become contented with their new homes.

Some time since, a gentleman and his family, whom we know well, removed to a new residence, only about two miles from their old one. Their cat, in its transit, could see every object on the road, as it was carried in the arms of one of the family the whole way. At first it was a little nervous, and seemed frightened. It received, however, many kind words and assurances of protection and comfort in its new abode. It was fed with a little bread and milk. During tea-time it remained in great quietness under the chair of the eldest child about eight years old, and of whom the cat was very fond. When tea was over, father, the son, and pussy went all together through their new home in the way we have described. 'This will do,' practically said the cat; 'here I believe I shall be happy.' And there she remained.

A Generous Cat.

The following anecdote was told to the writer, by a friend, immediately after what it refers to took place: In a northern suburb of London a poor, half-starved cat, who either never had a home, and was left to shift for itself as best it could, or if it had a home, was shamefully neglected by those to whom it belonged, one day found its way to the premises of our informant, who lived in the locality referred to. Hearing a doleful mewing at the outside of the house, his wife opened the door and saw the cat above-mentioned in the yard, in the company of another cat in very good condition. Pitying the emaciated state of the former animal the lady at once fetched some food and milk, which she placed on the ground for both the cats.

To her surprise the well-fed one did not attempt to touch either, but by certain sounds and movements, better understood by cats than by human beings, pressed her poor, starving relative to take the food instead of herself. This she did do, very ravenously, and without the slightest hesitation. The other cat then looked up at the lady's face, as much as to say, 'thank you for your kindness,' and then gave her a few mewing hints that her companion could *eat* a little more, and *lap* a little more *milk*. These were at once granted. The good-natured wife and the well-fed cat were both gratified with the good they had done, and the recipient of the food was, no doubt, equally so, and thankful too. Do not the humanity of the lady and the generosity of the cat teach us a noble and useful lesson?

Affection of Cats.

Cats, as well as other animals, exhibit strong affection for their young and those of their own kind. This affection is the conserving power which keeps together and perpetuates not only the different races of human beings, but the varied tribes of the lower animals. It is also to the helpless progeny of all animals the sure guarantee of parental care, support, and protection, without which they would totally perish.

The following account appears in a Bedford paper as occurring at Wootton: 'A cat belonging to the vicar of the parish had given birth to four kittens. As she did not seem strong

enough to suckle so many, it was judged best to drown them. After this she moped and went about in quite a desponding manner. One day she seemed worse, in fact half frantic, continually rushing about the house. On a sudden she dashed out of the house, ran across the lawn, and plunged into the ornamental pond in front of the house. She was quickly rescued, and a little brandy given her. As she then seemed a little better she was let loose. Later in the afternoon, however, she spied an opportunity to get out of the house, ran again to the pond, and plunging in was drowned before she could be again recovered.'

It has often happened, that after giving birth to their kittens, mother cats have had reason to suppose their cat nurseries had been discovered, and that they and their little families would, in consequence, be molested in some way or other. To prevent this they have been known to remove their young, one by one, to other places they have considered to be more secure and less likely to be found.

It has also been observed, after very young kittens have been taken hold of by human hands, that cat mothers have licked the bodies of their offspring wherever those hands have touched them.

The young of but few animals are more playful than kittens are. It is very amusing to watch their merry gambols, and the half-mischievous tricks they play their mother parents and even one another. Without prying into the probable miseries the future may have in store for some of them, and forming our judgment of cat-life generally from what we may see of the apparent happiness and pleasures of kittenhood, one could almost say, 'It is well to be born a kitten.' But unfortunately the picture has a dark as well as a light side.

Bingley, in his 'Animal Biography,' says: 'Nothing can be more beautiful than that of setting a kitten for the first time before a looking-glass. The animal appears surprised and pleased with the resemblance, and makes several attempts to touch its new acquaintance, and at length finding its efforts fruitless, it looks behind the glass, and appears astonished at the absence of the figure. It again views itself, and tries to touch the image with its foot, suddenly looking at intervals behind the glass. It then becomes more accurate in its

observations, and begins, as it were, to make experiments by stretching out its paw in different directions; and when it finds that these motions are answered in every respect by the figure in the glass, it seems at length to be convinced of the real nature of the image.'

The *Animal World* gives a very interesting account of 'A Cat Nurse,' which affords ample proof of the affection and sympathy of one cat for another. It says: 'In a cottage in the town of Derby, inhabited by two sisters, a favourite black cat lately died, at the age of eighteen. For more than three years she had been tenderly nursed by a tortoiseshell cat, which used to pay daily visits, jumping over a wall going and returning. She watched the invalid with tender care and solicitude, warmed her by lying close to her, brought her in continually a mouse or a bird, already killed, wherewith to try to tempt her failing appetite, and when the sick one seemed specially cold or poorly this faithful nurse would remain all night to keep her warm. At last the old cat departed quietly, as if asleep—the nurse removed to a little distance, and looked on most pitifully, without attempting to do more. She seemed to say, "It is all over, I cannot help you now!" and she mourned for her absent friend many days, and has not yet recovered her spirits. It may also be interesting to our young friends to hear, that when the tortoiseshell cat had kittens she brought them to her old sick friend, and left them under her care while she went out in search of a bird or a mouse.'

If it were necessary, numbers of instances similar to those we have given could be adduced, to prove beyond all doubt, that whatever the delinquencies of cats may be, they are not inferior to any tribe of animals, either in their attachment to those who use them well, or in their affection for their offspring and those of their own kind.

Some time ago the following account of a cat and dog appeared in the *Bristol Mercury*. The writer says, 'But lately a favourite tabby presented me with a litter of kittens, by no means so welcome to ourselves as to her, and a Cabinet Council, consisting of cook, housemaid, and gardener was forthwith held on the relative merits of the members of the little family, with a view to diminish their number, and to retain but one—the most lovely specimen. Our old terrier

Jack stood by at the consultation, much interested, and evidently impressed with the notion that a plot was at work against his friend and ally the cat, in whose offspring he seemed to take a lively interest. A few hours after, taking advantage of pussy's temporary absence from her family, the gardener appeared with the fatal pail in which to dispatch the condemned kittens, but they were gone, and could not be found —all six of them. Search was made in vain, and even pussy herself was at fault, and seemed much disturbed. At the extreme end of a long yard sat Jack in his kennel, stolid and immovable, till Tabby appeared, when he seemed to usher her into his own private apartment, into which place of safety he had carried every one of her kittens, and at the door of which he stood sentry, allowing no approach or interference. The rescued little family here remained till they arrived at maturity, Jack gallantly assisting in their education, and dividing his daily rations with his friend Tabby, whose maternal feeling he had so strangely regarded and protected. Tabby seems to feel that "A friend in need is a friend indeed."'

This story proves that maternal affection is stronger than antipathy, and that cats may fully appreciate the services and protection of their canine brethren.

Even admitting that the antipathy which cats and dogs sometimes show one towards the other be natural to them, it is often increased by the mischievous and cruel influences of men and boys who, when a cat is seen in a doorway, on the top of some area steps, or crossing the street, and a dog be near, will set him on to the cat, so that they may gratify their brutal propensities by seeing the one worry the other, and the poor wretched cat trying to protect itself from being injured by its canine antagonist. This, they say, 'is good fun; a fight to decide which is the bravest of the two, the cat or the dog.' While so-called 'lords of creation' indulge in such pastime, can we wonder that the antipathy referred to should sometimes be manifested by the animals just mentioned?

We could, however, adduce many instances to prove that cats and dogs can be trained to live amicably and happily together—even to eat out of the same dish, and to show sympathy for each other when overtaken by misfortune or suffering.

A cat we once knew well would allow old 'Sancho,' her

dog companion, to pull her about by the skin of her neck just when, and as long as, he pleased, without demurring to his strange fancy, or getting at all out of temper with him. Whenever any strange dog attempted to invade 'Sancho's' domain the same cat would fly at him like a tigress, and so terrify him that he would run for his life to get out of danger.

Superstitious Notions respecting Cats.

Although the cat family, especially our domestic cats, constitute a very important link in the chain of nature, and are useful in protecting our granaries and houses against the invasions of animals whose destructive proclivities are very great, cats are nevertheless subjected to the most wanton cruelty and to great suffering. Many people look only at the dark side of their character, and ignore their good qualities altogether. They condemn them as being spiteful, sly, thievish, and treacherous. Although we are bound to admit that some cats are thieves, two reasons may be assigned for this. Cats are carnivorous animals, whose appetites are often of the most voracious kind, and require flesh to appease them; in some cases they are badly fed by those who own them; and as 'hunger is a sharp thorn' even to cats, need we wonder, if they are starved, that they should plunder our larders, and thus be denounced for their dishonest propensities? There are, no doubt, some of our furry friends, who, like many human beings, are afflicted with 'kleptomania,' and in spite of good treatment and plenty of food will, for the love of taking what they instinctively know is forbidden, appropriate it to themselves in the most clandestine way they possibly can. Instances of this kind, we venture to say, are very rare. Kindly treated and properly fed cats are not, as a rule, guilty of the practice referred to, but live quiet and honest lives, by which they give ample proof of the power of humanity, and of the law of love.

When witchcraft prevailed in this country, those who were charged with practising it almost invariably had a cat companion, which was considered to be proof positive that her mistress was a witch. A black cat was sacrificed by the ancients to Hecate; and one, sent with a prayer-book and a bag of sand into a new house, so as to precede the proprietor

in possession, was formerly deemed essential to insure prosperity to the person changing his abode.

On the authority of the *Chelmsford Chronicle*, of May 1838, it appears a woman, who thought she had been robbed of some property by gipsies, was charged with boiling a cat alive, thinking it would enable her to find them out, to bring them to justice, and no doubt to recover what she had lost. Through ignorance, selfishness, and superstition, cats have been subjected to great neglect and tortures of the severest kind; not only have they been left to starve, but they have been hunted and worried by dogs, and even skinned alive because their skins would be likely to fetch a little more money.

We insert the following anecdote, taken from the *Animal World*.

'A Gipsy's Cat.—Many persons suppose that cats seldom attach themselves to those under whose care they live. The following incident, gleaned by the wayside, is, however, one of many proofs to the contrary. While taking a country walk, I met a family on the tramp. They were of the gipsy type, most wretchedly clad, and appeared to be carrying all their worldly goods. They asked for relief, but were not importunate, and I had nearly passed them by, when I noticed a young girl about nine years old, trudging along as best she could with a large open basket, in which a fine grey-tabby cat was contentedly seated, as if she were quite used to that mode of conveyance. The novel sight arrested me, and I then found there was a light chain two yards long attached to the basket at one end and to pussy's collar at the other. The gipsy girl told me she had the cat when a kitten and was very fond of it, a fact borne out by its good condition and perfect tameness; she said it would follow like a dog, and they were not a bit afraid of losing it, for it never tried to get away from them and always went with them in their migrations. Does not the humanity of the homeless gipsy teach a lesson to persons in better circumstances, who, when they leave town to enjoy themselves, take no heed of the household cat, and by neglecting to provide for its daily food consign it to the chance of a lingering, cruel death?'

If cats are not deemed so useful as our working animals, they have their uses. They keep in check other animals whose preponderance would be a great disadvantage to us

commercially; and they are, in London and other large towns, especially useful in a sanitary point of view. A few years since, the following paragraph appeared in a South London newspaper:

'LONDON CATS.—At the meeting of the Vestry of St. George-the-Martyr, Southwark, Mr. Shaw stated that horse-slaughtering establishments were necessary in London, inasmuch as 300 horses died every week in the metropolis, in which there were no less than 700,000 cats to be fed.

'If 700,000 cats eat but half an ounce each per day of horse flesh, they would require, weekly, not less than 556 horses weighing about twenty stones each; so that the 300 horses referred to by Mr. Shaw would be inadequate to supply, at the rate we have calculated, sufficient horse flesh for the cats of London. The question is, could the flesh of 300 horses be as easily and profitably disposed of in any other way as it is now by being used as food for cats? If any difficulty should arise in getting rid of it, especially in summer-time, decomposition of it might set in, and then the atmosphere would be charged with impurities detrimental to the health of the population. But as the needs of cats must be supplied, dead horses are but seldom, if ever, a drug in the market. Their bodies being quickly consumed by our domestic cats, the disastrous effects of decaying animal matter are thereby prevented.

'If these cats cost one halfpenny a day each for food, all of them would cost £1,458 6*s.* 8*d.* per day. This sum would pay for 50,000 quartern loaves of bread at sevenpence per loaf.'

The following interesting information respecting our feline companions and their foreign relations appeared in the *Evening Standard* newspaper, October 13th, 1881:

'From time immemorial the cat has been a popular pet, and at no date does it appear to have been more so than it is here in England at the present day. It is true that it does not hold the high place in our esteem which it did in that of the old Egyptians, who deified it, and worshipped it—in connection with onions; but our affection for it, and our pride in its personal appearance, have grown with the growth of years. Our respect for the diminutive tiger may be less than was that of the ancients; but our appreciation is more general

and genial. In the great national museums of European capitals we find the effigies of the cat sitting cheek by jowl with those of the Pharaohs; whilst in the popular places of exhibition nowadays we have periodical displays of their descendants sent from all parts of the kingdom for public admiration. And this recognition of their beauty they easily compel, to judge from the attention being bestowed upon the exhibits in the Cat Show at the Crystal Palace which opened on Tuesday, and which closes to-day. Here are arrayed some of the most perfect specimens of feline beauty, of the possession of which lovers of the tribe in England can boast; and a graceful picture it must be acknowledged they present. But behind that gentle mien and sleek appearance lurks a nature fierce to the utmost limits of ferocity, a nature that takes delight in cruelty for cruelty's sake. Cats were no doubt originally domesticated for the purpose of clearing homesteads of the vermin which find their way to places where food is stored, and by degrees they came to be admired for their grace and beauty, and elected inseparable companions of the hearth. Now, at least so far as London and other great cities are concerned, the original design and intention have come to be overlooked, and the tabbies are readily reconciled to this altered state of relations between themselves and their owners. The cats'-meat butcher comes round at his habitual hour in the morning, and he is as well known to his four-footed customers here as the dog butcher is to his four-footed victim in Pekin and Shanghai. Cats now feed upon horseflesh in their homes the same as the great carnivora do in the Zoological Gardens; then sleep the day through, and only go forth to display their vocal powers after dark. The duties which they were originally intended to perform have to be executed by means of traps and poisons, to the lures of which the thievishly inclined animal not unfrequently falls a victim. In fact, as a rule, the cat of the period has ceased to be regarded as a creature meant for useful purposes, and only to be looked upon as a thing of beauty—an ornament which, it may be remarked in passing, proves somewhat of a nuisance to hard workers who seek peaceful sleep in crowded cities.'

The claims of cats on man's care and humanity have been so repeatedly and eloquently set forth by lovers of animals,

that it is almost needless for us to show that it is our duty to use them well. In their structure, cats are wonderful; in their habits, they are often amusing. Their sagacity and intelligence are so great that they justly claim a much higher estimate than, as yet, many people have accorded to them. They are also God's creatures; they have good memories, the feeling of love and aversion, strong affection for their young, and attachment to their homes and friends. They will return, in their way, warm gratitude for kindness shown them; therefore we are morally bound to protect and treat them humanely, and, as far as we can, to mitigate their sufferings.

We now give, on behalf of our furry friends, what their appreciation of care and kindness seems fully to express, namely:

THE CATS' VOTE OF THANKS.

We purr our best thanks to the ladies,
  Because we believe them to be
The very best friends we can boast of;
  As all of us plainly can see.
They not only try to protect us
  From cruelty, danger, and harm;
But give us a place in their household,
  And lodgings, both cosy and warm.
Then we in return for their kindness
  Will render what service we can,
And show, by affection and duty,
  That cats may be useful to man.





CHAPTER XVIII.

OUR CANINE COMPANIONS AND TENANTS OF THE KENNEL.

IF attachment to the lower animals be deemed a weakness of human nature, and if it should be said that it shows a lack of true dignity, there are but few persons, if any, who can claim exemption from that weakness, or who can deny that they are deficient in true nobleness of character. It is, however, an error to suppose that love of animals, if kept within reasonable bounds, either shows the one or proves the other. It cannot be at all degrading for one being to feel a lawful attachment to that which Almighty power has condescended to create, and which bears evidences of God's love and infinite wisdom.

In proportion as we recognise beauty, good qualities, and intelligence in animals, we are, no doubt, attracted towards them, and feel an interest in their companionship. This is particularly the case in reference to dogs. Much pleasure and instruction have been derived from watching their habits and instincts—their affection, fidelity, love, hatred, and ebullitions of temper—as well as their mental qualities; such as their sagacity, ingenuity, intelligence, and reasoning powers. The poet's picture of this animal should induce us, at least, to respect him:

'The poor dog! in life the firmest friend,
The first to welcome, foremost to defend;
Whose honest heart is still his master's own,
Who labours, fights, lives, breathes for him alone.'

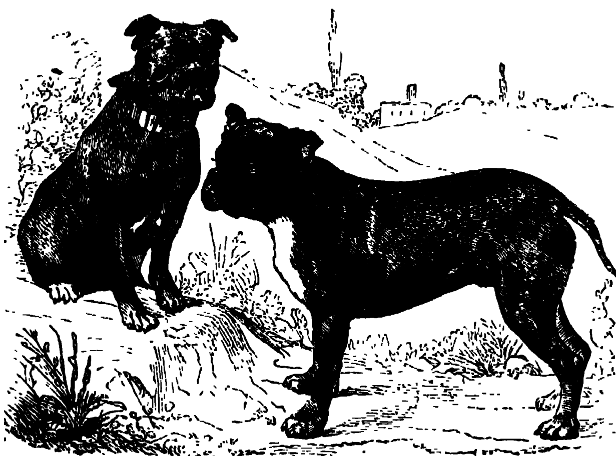
Dogs belong to the order Feræ, class Mammalia, which also includes foxes, jackals, and wolves. There are many

varieties of the domestic dog, distinguished from each other by a difference in size, form, strength, colour, length and quality of the hair, shape of the ears, conformation of the skull, length and thickness of the legs, as well as of the tail. They are all, however, less or more carnivorous animals, fierce and destructive when not properly tamed and subdued. Many of them are strong and resolute, and some remarkably swift of foot.

As a brief description of some of the physical characteristics of the dogs known in this country may be interesting, we will introduce them in alphabetical order.

THE BULLDOG.

The structure of the head, jaws, and lips of the bulldog gives him a repulsive appearance, and is, no doubt, one cause



Bull-dogs.

why so many persons dislike him. It is reasonable to suppose that the cruel practice of bull-baiting, at one time very common in England, and in which dogs of this breed were employed, would have the effect of developing the fiercer instincts of their nature. If to this we add the fact that this animal is often kept and trained by his brutal master to fight other

dogs, can we wonder that he should be savage and ill-tempered, be suspicious of other men, show them his teeth, and scowl at them with his fierce-looking eyes?

The bulldog, however, is not so bad as he looks. He has some good qualities, which are easily brought out by kind treatment. He can be trained to love, and to be gentle, as well as to fight. Instances have been known of bulldogs clinging for days to the graves of their masters, and sometimes to starve on them.

THE BLOODHOUND.

Formidable as this dog looks, he is gentle and sociable. His coat is short, forehead long, eyes deep but expressive, and



English Bloodhound.

with a peculiar look of redness about them. His ears are long, shoulders and fore-legs straight and powerful, chest deep and full; his height from twenty-five to thirty inches, his back is deep and somewhat prolonged. He is rather short-tempered, and when provoked is even dangerous. But he bears no malice, and is very forgiving. He is often play-

ful, especially with his master and children, and 'one of the safest of dogs.' On account of his marvellously keen scent, he is frequently employed in tracking fugitive negro slaves and murderers, and many are the instances in which he has been successful in doing so.

THE BEAGLE.

This dog is used in hunting rabbits. He is of small size, and has a good scent. He has an intelligent-looking head, a sharp nose, and a soft expressive eye. He is seldom more than about thirteen inches high. At one time he was a great favourite with country gentlemen, and was much esteemed by Queen Elizabeth, and Prince Albert, who often hunted with him in Windsor Forest. It is said that when these animals are in full cry, their tones are quite musical.



The Deerhound.

THE DEERHOUND.

This dog belongs to the greyhound family, and is sometimes called the Highland greyhound. Although he is tall, and his body long and slender, he is strong and well-built. His muscles

possess amazing power, as he can as easily jump over a five-barred gate as a man could walk a yard. He has many excellent qualities, but is sometimes dangerously ferocious, and often very cunning. He is usually kept for sporting purposes, especially for chasing the stag. He hunts both by scent and sight. He can see a considerable distance, as he always carries his head erect, except when running at full speed.

THE FOXHOUND.

It is said that the modern foxhound is a cross between the greyhound and the old English hound. From the latter he derives his spirit, and his speed from the former. He is kept and purposely trained for hunting the fox, hence his name. This pastime may be very pleasing to those who follow the hounds in hot pursuit of their victim, but is it not associated with wanton cruelty to a comparatively weak and helpless animal, and therefore a degradation to those who commit it? Like the deerhound, this dog hunts by sight, but principally by scent. Foxhounds always hunt in packs, and so do dogs in a wild and savage state.

THE GREYHOUND.

No kind of dog is better adapted for running at great speed than the English greyhound. His body is strong, light, and lithe, and his legs so long and muscular, that he has been known to run four miles in seven minutes, and to run hares to death. He is chiefly employed in hare-hunting. His sight is good, but his scent is not so keen as in many other dogs. He has a graceful appearance, and has always been much esteemed for his beauty. He has often been the special favourite of high-born people, and even of kings. Pardon, in his book on 'Dogs,' etc., says: 'On many old tombs in England the greyhound is represented lying at the feet of his master; and even celebrated sculptors did not hesitate to try their skill in modelling portraits of this valuable and faithful servant of man.'

In addition to the English greyhound, there are the Scotch —already mentioned as the deerhound—the Irish, the toy or Italian greyhound, etc. The Irish greyhound is a powerful

dog, resembling in size and general appearance the deerhound, but with hair less wiry. This dog was formerly of essential service to the inhabitants of Ireland, who were often in great danger of being injured by wolves, boars, and bears, which at one time abounded in that country.

The Italian greyhound is a graceful-looking animal, but very light and delicate. It is usually kept by ladies as a pet dog, and may be considered a kind of drawing-room companion. Like the offspring of nearly all other animals, these pets, when young, are very playful, and particularly fond of rolling about and chasing one another, which they do with so much spirit and apparent good-temper that one is reminded of a number of liberated school-children, who give vent to their feelings by having recourse to some merry game, or by romping one with the other.

The Harrier.

The harrier is so named because it is used in hare-hunting. It is a kind of small foxhound, seldom more than eighteen inches high.

King Charles' Spaniel.

This dog is so named because King Charles II. was particularly partial to a dog of this breed. He is of small size, and most usually kept as a lapdog, or pet. His head is round, eyes very large, ears long and hanging down, nose short and somewhat turned up, neck and legs short, and body well covered with glossy hair, which in some is black, but in others of a mahogany colour. He becomes strongly attached to those who use him well, but he is not so intelligent as many other dogs are. It is no doubt owing to his diminutive size and certain points of dog beauty peculiar to his breed, that he is so great a favourite, especially with ladies.

The Lurcher.

This dog cannot boast of pure descent, as he is said to be the offspring from a cross between the greyhound and the shepherd's dog. Be this as it may, he is a very faithful and useful animal, particularly in hunting game, which he generally

does in the most quiet way, never barking when in pursuit of it, or making a noisy fuss when he has secured it. It is no doubt on this account that he is so much valued by gipsies and poachers. He possesses a good share of intelligence, and readily learns the meaning of words and sentences. He understands a rebuke, and willingly carries out the wishes of his master. Once, on visiting a gipsy encampment, the writer was somewhat roughly saluted by a lurcher dog who was guarding one of the tents, but on hearing him say in the gipsy dialect, 'Besh-te-lai-jukel,' he ceased his barking, put his tail between his legs, and slunk back behind the tent.



The Lurcher.

THE MASTIFF, OR WATCH DOG.

One of the most remarkable points of structure in this dog is its enormously large and powerful jaws, which have so formidable an appearance that a grip by them may well strike terror into the heart of the most audacious housebreaker. The body of this dog is large, chest deep and wide, and loins very powerful. It is said that the best-bred mastiff is of a dark-fawn colour, and his muzzle very black; and that when full grown, he is about thirty inches high. He is a good house-dog, because he is strong, very quick of hearing, bold, resolute, and courageous. He watches over the property of his master with the greatest care.

Pardon says, in alluding to the mastiff: 'In the course of the night he several times examines everything with which he is entrusted with the most scrupulous care, and by repeated barkings warns the household or the depredator that he is at his post of duty.'

The following curious but interesting story is taken from the *Animals' Friend Almanac* for 1881:

'*Mastiff and Goose.*—A Cambria goose, belonging to a person

in Scotland, was observed for some time to pay particular attention to a mastiff which was chained up; and, what was singular, this dog had been chained for the purpose of restraining him from flying at the poultry, to which he had always displayed great dislike. In the present case he laid aside all his former animosity, and received his new acquaintance with every mark of affection. The goose, finding she had nothing to fear from him, would enter his kennel, in the centre of which, among the straw, she made her nest and deposited her eggs, which was not known till one of the children of the gentleman's family discovered that the goose slept with the dog! This singular circumstance led to an examination of the kennel, not without the greatest opposition on the part of the dog, who appeared determined to protect what was left in his charge. On removing the straw, five eggs were discovered in a fine bed of down and feathers. The dog was in the habit of entering his kennel with the utmost care for fear of disturbing or injuring the eggs.'

THE NEWFOUNDLAND DOG.

This dog has a majestic appearance, and is the noblest of our water-dogs. He sometimes measures six feet from the nose to the tail, and stands more than two feet high. Many dogs of this breed have been the means of saving both men, women, and children from drowning, and therefore deserve to be considered useful members of the 'Royal Humane Society.' The eyes of this dog express great intelligence: his nose and mouth are large, and his teeth are even. He is noble, faithful, and sagacious; possesses a very heroic spirit, and is generous to a degree.

THE OTTERHOUND.

Otter-hunting was at one time very common in England, especially in the northern counties and in Devonshire. As the otter is an amphibious animal, he is usually found in streams and rivers, which renders his capture more difficult. Of late years others have greatly diminished in numbers, a fact the humane will hardly regret, because, as in all other sports of a similar kind, much needless suffering is inflicted



The Newfoundland Dog.

upon a comparatively defenceless animal, who, in being hunted, has to contend against fearful odds, and in most cases has to yield up its life to superior power, and for the gratification of the cruel instincts of men who proudly think themselves 'lords of creation.'

In 'Anecdotes of Dogs and their Uses,' the otterhound is thus described: 'The modern otterhound is a cross between the bloodhound and the southern hound, at once fierce enough to face the savage creature he hunts, and courageous and patient enough to do the huntsman's bidding. To the courage of the bulldog, he must add the sagacity of the pointer, the speed of the foxhound, the constancy of the poodle, the cunning of the sheep-dog, and the strength and endurance of the Newfoundland. He must be able to stand wet and cold, to hunt by sight as well as by scent, to be undisturbed by the whoops and cries of the lookers on, and to implicitly obey the voice and even the look of the huntsman.'

The Pomeranian Dog.

This animal is also a great household pet. His appearance is no doubt much in his favour. His coat is either white, or of a cream colour. The form of his head and ears gives him the look of a fox. He is capable of appreciating kind treatment, and will show great gratitude for it, by devotion to those who use him well.

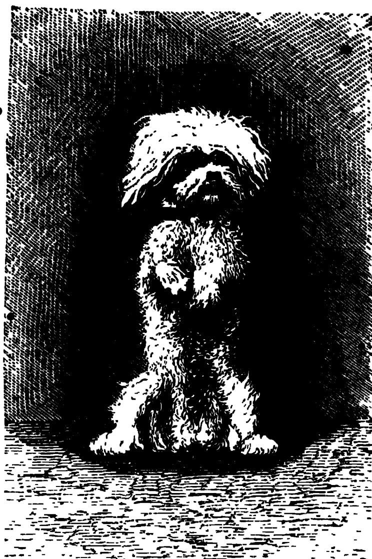
The Pug Dog.

The true English pug is small, of a sandy colour, with dark muzzle, and a curly tail. Although he is not the most attractive looking of our pet dogs, and has been often called a sort miniature bulldog, he is cleanly in his habits, very sensible, and affectionate.

The Poodle Dog.

This dog possesses a good temper, and is very docile. His imitative powers are considerable, and his capabilities of education are superior to those of many dogs. He can be taught not only to perform a number of different tricks singly, but to take his part in a stage performance with many other dogs.

He belongs to the spaniel family; has white curly hair, which is frequently taken from every part of his body, excepting the head, neck, feet, and the end of the tail, which gives the dog a grotesque appearance.



The Poodle

THE POINTER.

There are few dogs more valued by their owners than the pointer. To those who are fond of shooting game this animal is an indispensable companion, because, having such an acute scent, it easily discovers where the game lies, and which it indicates first by stopping and then by moving forward as silently as possible. These cautious movements on the part of the dog suggest to his master to be ready for a shot when the game rises. Should he bring down a bird the dog will appear to be well pleased. Instances, however, have been known of pointers leaving the field in disgust if, after a few shots, their masters have failed to bring down the game, and no persuasion subsequently would ever induce these mortified pointers to accompany such bad shots again.

THE RETRIEVER DOG.

So high is the estimate some people form of this dog, that one could almost conclude they think him to be the very perfection of the dog family. That he is good-looking and useful no one can deny, although he is a cross between the Irish water-spaniel and the Newfoundland. As his name

implies, he can be trained to be very useful as a carrier of different articles, possessing, as he does, great strength as well as great willingness to perform any useful service to his owner. The retriever is very fond of the water.

The Staghound.

This dog is large and powerful, and is kept for the purpose of hunting the stag. It is to be deplored that so fine and intelligent an animal as the staghound, or any other hound, should be used for such a sport, which often ends in great cruelty and suffering to the poor innocent object of the dogs' pursuit. This dog is very sagacious, and can be easily trained to be gentle, affectionate, and confiding.

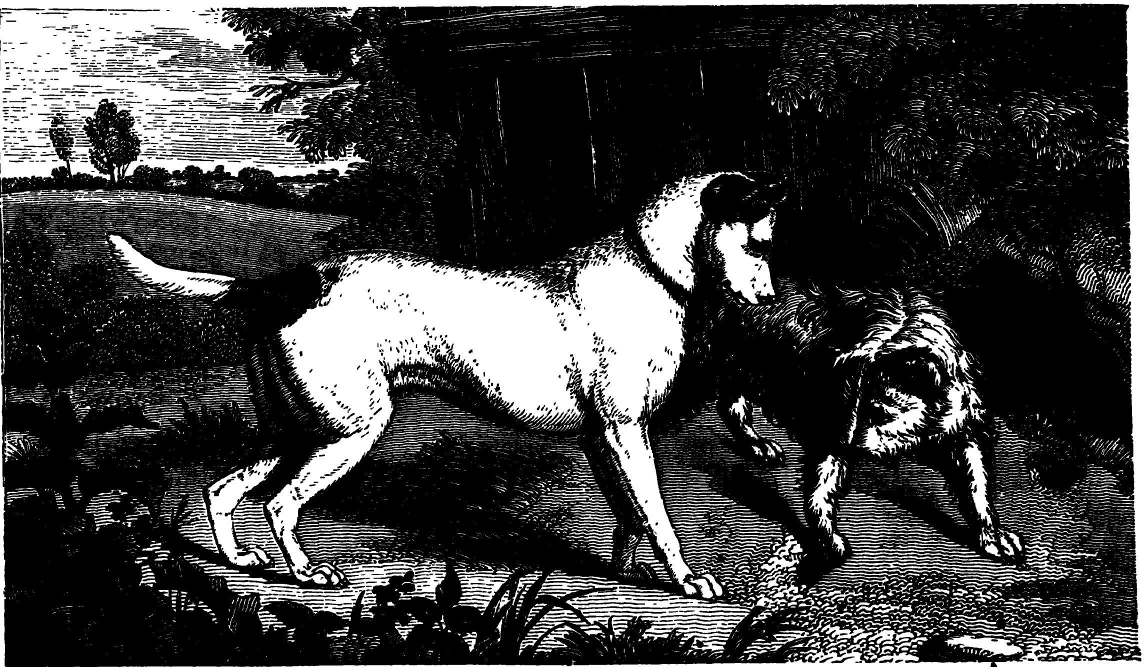
The Terrier.

Terriers are so well known that we need not describe them, only to say that they consist of rough and smooth haired animals, most of whom are sharp, clever, and useful. There are the English terrier, wire-haired terrier, fox terrier, Yorkshire terrier, Skye terrier, Scotch terrier, Maltese terrier, and bull terrier.

The Shepherd's Dog.

This dog is the most useful, generous, unselfish, hard-working, and faithful of all our dogs. In the mountainous districts of England, Scotland and Wales he is invaluable to the shepherd in collecting his flock when required, and which, if it were not for his dog, he would have to travel many weary miles to do. This dog is also of great use to the owner of the sheep in saving the expense of a number of shepherds, who would cost more than the value of the stock.

In Scotland this dog is called the 'collie,' and is very highly prized by his master. This he deserves, not only because he is useful, but because he is marvellously intelligent, and possesses so many excellent qualities. He is so attached to his master that he will endure hunger, thirst, and many other privations, rather than be separated from him. He will even risk his life in fire and water in order to serve him, and to be in his company. The collie is as tender as a nurse over a sheep that is sick or lame, and seems to know as well as a human being knows that under such circumstances great care and gentleness are requisite.



Terriers.

That the collie dog is very intelligent is clearly exhibited in the following anecdote, given to the writer by a friend: 'A shepherd, living on a farm near King Sutton, had a dog, a small Scotch collie, remarkably sagacious, and who seemed to understand language almost as well as a human being. If a sheep happened to get on his back, and could not rise, because of its thick coating of wool, although in a field some distance off, the shepherd had only to point in that direction, and to say to the dog, "There's a sheep on his back, and he can't get up; go and help him!" when the dog would start at once, and as soon as he reached the sheep lay hold of the wool under his body, and by a strong pull up would put him on his legs again.'

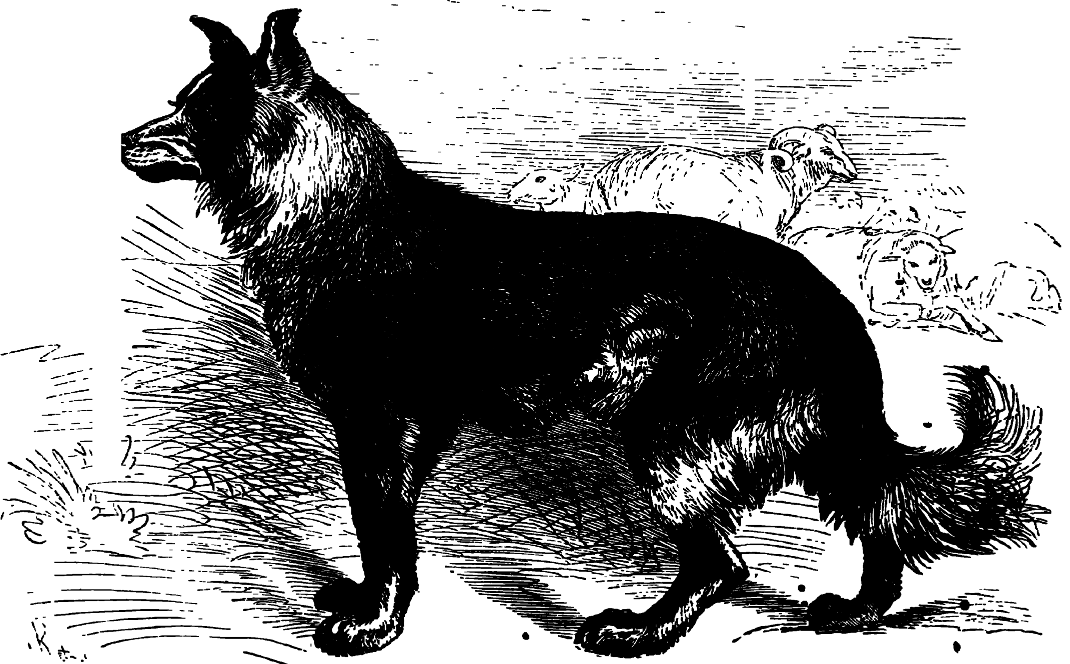
This same dog, when told the gate was open, and that he was to fetch the cows from the pasture for milking, would do so. If a cow was lame, or otherwise disabled, and could not travel, the collie would tell his master so by jumping and barking and running back towards the field.

Buffon says of the shepherd's dog, that he 'is superior in instinct to all others; and notwithstanding his melancholy look, he has a decided character, in which education has but a slight share. Other dogs may be taught, but the shepherd's dog appears to take to his business with a sagacity that astonishes while it gives ease and assistance to his master. If we reflect on these facts, we shall be confirmed in our opinion that this is the true dog of nature, the stock and model of the whole species.'

Origin of the Domestic Dog.

Naturalists have found some difficulty in tracing the parent stock of the dog. Some contend that his ancestors were wolves and jackals. While the skeletons of wolves and dogs do not differ very materially, and while in many essential points they are very similar to each other, there is a decided difference in the eyes of these animals. The eye of the dog in this, and every other country, has a circular pupil, but the position or form of the pupil in the eye of the wolf is oblique. There is also a marked difference in the temper and habits of the two animals.

The difference in size, strength, and form, as well as in the colour of the hair of dogs, has been adduced as an argument



The Collie Dog.

in favour of a plurality of origin of these animals. One writer says: 'We have many opportunities of observing the varieties produced by accidental causes, and we see those accidental varieties diligently cultivated into new species, altogether different in form and use from any that preceded them.'

The first mention of the dog in the Bible is in connection with the Israelites when in Egypt: 'But against Israel shall not a dog move his tongue.' After this they are often mentioned. When the Israelites were in Canaan, scavenger-dogs used to prowl about their cities, in which they were of great service, by clearing them of carrion and of decaying vegetable matter. But even then, as now, the Jews did not regard dogs with favour, only so far as they could use them in guarding their flocks and herds. They have always, like the Hindoos and Mahometans, regarded the dog as an unclean animal.

'The Egyptians and the Ethiopians, however, held the dog in great veneration, and erected temples to his honour; and as the former people were open enemies of the Israelites, the dislike of the latter to this faithful animal may probably be thereby accounted for. Among the ancient Greeks and Romans the dog was highly esteemed. They employed it in hunting, and set great store upon the pure breed of their hounds. They probably valued his staunch and incorruptible fidelity, and many touching accounts of his love for his master are to be found among the ancient poets.'

When dogs first became domesticated is also difficult to ascertain, but that they were so at a very remote period is certain. 'The fox-dog appears to be the oldest dog of which the Egyptians have left any effigy. It represents a symbol in their alphabet, and must therefore be upwards of 4,000 years old. The greyhound is also represented on some early Egyptian monuments. It occurs first in paintings on a tomb of the fourth dynasty upwards of 4,000 years old.'

Not only in England but in almost every part of the world the dog is, at the present time, domesticated, and regarded as an important and necessary member of every household. Kings, nobles, and others of high degree, as well as those in humbler spheres in life, down to the peasant in his cottage home, have made companions of dogs. Great statesmen, philosophers, poets, and painters, roving Indians, Green-

landers, nomadic gipsies and other wandering tribes, have kept and made companions of these faithful animals.

The ideas and tastes of men differ very considerably in reference to dogs. Some prefer those of certain sizes, others look more to the form of them, while not a few consider, more particularly, their tempers, activity, colour, and uses. Dogs with the following characteristics have each their admirers: we refer to large dogs, small dogs, fat dogs, lean dogs, long dogs, short dogs, ugly dogs, handsome dogs, rough dogs, smooth dogs, long-tailed dogs, short-tailed dogs, black dogs, white dogs, brown dogs, sandy dogs, brindled dogs, spotted dogs, gentle dogs, savage dogs, bold dogs, timid dogs, long-eared dogs, short-eared dogs, pet dogs, working dogs, pure-bred dogs, mongrel dogs, and noble dogs—all more or less sagacious, faithful, and true dogs.

Dogs of nearly every kind may be seen in our busy streets, mingling with human beings in every grade of life, and of every character. They move about with so much freedom and confidence, that one can hardly help saying, 'They seem to think and to know they have a right to do so, and to make themselves at home wherever they please.'

It has been asserted that dogs are physically affected by different climates, almost in the same way as human beings are. This is illustrated by the rough Irish or Highland grey-hound, and the smoother one of the southern part of Britain; the more delicate one of Greece, and the diminutive dog of Italy, and the hairless one of Africa and the Brazils.

'One of the most striking proofs of the influence of climate on the form and character of this animal occurs in the bull-dog. When transported to India he becomes, in a few years, greatly altered in form, loses all his former courage and ferocity, and becomes a perfect coward.'

Structure of the Dog.

It has been also stated by those who have made the dog a special study, that in the muscles and joints of his limbs, in the conformation of his cranium, the structure of his eyes and ears, and in his internal organism generally, he resembles man more than any other known quadruped does; one point of difference being in the size of the collar-bone, which in the

dog is very rudimentary, and often difficult to find; and the other that the dog has not, like man, and many other animals, the power to move his jaws sideways. When eating, he does not stop to grind or to masticate his food, but swallows it whole. It may be observed that dogs, when eating, first throw one side of the head up, and then the other, with a sudden jerk and a snap, so that they may the more easily divide their food.

The dog being a digitigrade animal, has four toes on each hind-foot, and five on each fore-foot; the fifth is, however, like the collar-bone, only rudimentary. The tongue of this animal is smooth. The tail of the dog may be regarded as his instrument of speech, by the varied movements of which he expresses his feelings, his thoughts, and his expectations. When he wags it, he tells you he is pleased and satisfied; if he moves it with great rapidity, and looks up into the eyes of his master to watch their expression, it is an indication that he is anticipating a great treat of some kind or other; when he drops his tail lower than he usually carries it, it is a sure sign that he is either in fear, is displeased, or disappointed.

Docking the tails and cropping the ears of dogs, however much some people may fancy it improves the appearance of these animals, is, we think, a cruel practice, and should not be encouraged.

An instance has been brought under our notice of the very curious and wonderful way in which a mother dog of the Russian wolfhound breed furnished her pups with food. Every day during the time she was suckling them, she regularly visited some dining-rooms at the West-End of London to pick up any scraps she could find or that might be given to her. When she had obtained as much as she required she would return to her young ones, who would all look eagerly up to her mouth as if in expectation of something to eat. They were seldom disappointed, as the mother would, aided by some strange structural arrangement and power, disgorge what she had eaten, and give to each puppy its portion as she thought proper. This is authenticated by several eye-witnesses. We know the owner of the dogs well. Two of the puppies referred to are an immense size, one of them being able, when standing on his hind-legs, to reach six feet nine inches high.


Weir

In addition to the power the dog has of expressing his pleasure or disapproval by the waggings of his tail, he can do so by a howl which may be the language of pain, hunger, or grief, while his growl may be that of displeasure, and his bark an expression of delight. It is mentioned as a singular fact that dogs lose the habit of barking when removed to the southern parts of America, and that those born in that part of the world never bark; however, they are not dumb, since the wild dogs howl a sort of feeble cry or yell when in pursuit of game, and the domestic kind sometimes howl in a very unpleasant manner.

Dogs have played in past ages very important parts in the superstitions of different countries. When a dog howled at the door of a house, or with his feet on the window-sill, it was an omen that one of the family was to die. The old woman who was suspected of being a witch because she was infirm and stricken with poverty, had always a cat and a dog, said to be her familiars, and through whom she was enabled to commune with the spirit of darkness. To meet a black dog on a stormy night was deemed a very unlucky sign; and in more than one story the 'Evil One' is said to have taken the form of this faithful friend and companion of man.

Many years ago a Methodist preacher was returning home one Sunday night after holding services in a village chapel about seven miles off. It was near ten o'clock when, in a solitary part of the road, he saw distinctly by the light of the stars, then shining very clear, what appeared to be an immense dog cross the road just before him. It then noiselessly leaped over a gate, turned round and looked at him with its two large eyes of fiery brightness, the sight of which almost petrified him with fear. But a few moments elapsed when with a tremendous growl or roar it vanished at once from his sight. The preacher reached his home in a nervous and excited condition of mind. He told the story to several friends, some of whom said that it was no doubt his Satanic Majesty, who had assumed the form of a dog, and that in the manner described he had shown his disapproval of the mission of mercy in which the preacher had that night been engaged.

Herodotus says that the people in Egypt when a dog died shaved themselves all over, and he mentions it as a custom still subsisting in his own time.

INTELLECT OF DOGS.

As the dog, like all other animals, is controlled and guided in much that he does by what is termed instinct, it is necessary to give a brief definition of this property before referring to the higher qualities and endowments of this animal. 'Instinct means the capacity which is within; which borrows nothing from comparison, and cannot profit by experience; but acts from the impulse of perfect objects on its organs of sense.' Instinct prompts an animal to perform certain actions which tend to the well-being of the individual, or maintenance of the species. This instinctive property is not exclusively confined to what are called the lower animals. The child just ushered into life, without knowledge, without experience, and with an undeveloped brain, instinctively turns to that which is its natural food. The puppy and the kitten, both born blind, do the same thing, and are prompted to do it by the same capacity which is within. Somerville says:

> ''Tis instinct that directs the subtle dog
> To choose his proper prey.'

As the dog grows older and his brain develops, he learns and comprehends many things with which instinct has but little to do. His acts are often of such a nature that nothing less than intellectual power could have guided him in the performance of them. Many proofs might be adduced to show that the mental capacity of the dog is very considerable, and that its manifestations often approximate very closely to those which proceed from the superior brain-power of human beings. The first thing to which we shall refer, in order to show that the dog is endowed with various faculties of mind or intellect, is

MEMORY OF THE DOG.

Memory, in man, is that faculty of the mind by which it retains a knowledge of past events, not only of a recent date, but those of early life. Admitting the dog has reasoning powers, or inventive faculties, he must have memory, as the process of reasoning cannot be carried on without it, and because it is necessary, in order to work out a proposition, that one thing should be compared with another.

Some men contend that the dog has not the power, like

human beings, of constantly retaining in his memory an act of kindness which anyone may do him; but that he forgets it as soon as the person is out of sight, and remembers no more about it, until he sees that person again. How anyone is to prove the correctness of this theory we know not. Facts are not only against it, but strongly indicate that an act of kindness or cruelty to a dog is never totally absent from his mind.

Be this as it may, it is well known that if a dog, after an absence of months or years, should meet an old friend, he would not only recognise him, but by sundry wags of his tail, and many hearty demonstrations of delight, prove that he distinctly remembered the favours that friend had previously bestowed upon him. The same holds good with a dog who may have been brutally treated. He also would not only recognise his tormentor, but call to mind the cruel treatment he had received from him, and in all probability would give the man some savage proofs that he well recollected it. The dog not only remembers faces and acts, but localities and the different tones of the human voice.

It is said of the 'spaniel' that the more he is chastised by his master the closer he clings to him. But although the dog is, as a rule, very forgiving, he sometimes becomes very morose and indignant, even spiteful and vindictive, and will show, by sulking a long time, that he remembers and smarts under a wrong that has been done to him.

The above statements are fully borne out by the following story, related by Mr. Jackson, who says: 'It is not long since that I read in the newspapers of a bloodhound that was habitually ill-treated by a lady in France. On one occasion, when the dog had given no offence, and solely to gratify a cruel disposition, she chained the dog, as she thought, securely, and administered a savage flogging. The dog bore it without a murmur, and then lay down to lick his wounds and to brood over his wrongs. At last he made up his mind to forbear no longer, and when next she came within his sight he made a spring, broke his chain, and in a few seconds tore her almost to pieces, so that she died before the servants could come to her aid.'

The interesting story of 'Greyfriars Bobby,' who was a constant visitor to his old master's grave, on which he slept for

about eight years, affords ample proof that the bodily presence of his dead friend was not indispensably necessary to enable him to remember the many past kindnesses he had received from him. 'Although his master was hidden from sight, the dog's devotedness and affection never seemed to lessen, which must, we think, have been the case had he not retained in his memory a grateful recollection of their past associations one with the other.

We have been informed that a gentleman, owning a young Newfoundland dog, was frequently visited by two students, with whom the animal became very familiar. One morning they called to see the gentleman referred to, who happened to be from home. The dog, however, was there, with whom the young men resolved to have some fun. Whether they thought that what they were going to do would 'point a moral,' as well as 'adorn a *tail* (tale),' we know not; but they tied to this appendage an old tin-kettle, and then sent the dog into the road. He ran and yelled like a mad thing, the kettle every now and then striking him with great force, until at last the string broke and liberated the kettle. It is true the dog was not much injured, but frightened, degraded, and annoyed, as the sequel will show. About this time the students left the locality, and remained away five or six years. When they returned they went to see their old friend, the dog's master, the dog being at the time in a room at the back of the house, so that he did not see the young men enter. While the three were in conversation, the dog scratched at the room door, which his master opened and let him in. With one bound the animal sprang at the elder student and seized him by the collar of his coat, and, had it not been for the gentleman's intervention, the young man might have been seriously injured. This strange proceeding much surprised the dog's owner, who said the animal was one of the gentlest and best tempered of his kind, and that he was sure there was some very special reason for this savage attack. The young men then told him of the occurrence we have just related, which of course cleared up the mystery at once, and convinced the students and their friend that the dog had called to mind the cruelty that had been practised upon him years before. As already stated, the dog had not seen the young men come to the house, but only heard their voices, the tones of which it is clear he had never

forgotten, but had retained them distinctly in his memory during that long period of time.

About a year ago a gentleman residing in Keppel Street, Russell Square, London, having occasion to leave home, from which he was absent about two years, was on his return, and when passing down the street in which his house was situated, recognised by his favourite dog he had left behind, and who happened to be at the time on the balcony of the first-floor. The dog was so elated at the sight of his old master, that he jumped down on to the pavement below, and, although somewhat shaken, ran to meet him, and then gave him a very hearty barking and waggish welcome home.

'Who has not read the story of the wanderer of Ithaca, who had been forgotten by all who formerly lived on his bounty, but was instantly recognised by his faithful dog, who fawned on him, and then died?'

Many years' separation of dogs from their owners has failed to erase from their memory past kind looks, voices, and actions. The pleasure dogs feel in meeting old friends no doubt arises from a distinct remembrance of acts of kindness formerly shown, and of happy days long since past.

That the dog has a good memory is evident from his powers of imitation, and being able, by a course of training, to perform certain feats and to obey certain words and signs, and in public performances to take his own particular part, just in the proper manner and at the right time. It would be impossible for the dog to acquire a knowledge of these things without the aid of a good memory. It is said that performing dogs give, by their movements in sleep, the strongest proofs that dogs dream.

Do Dogs Dream?

In most dogs the nervous system is much developed, the imagination strong, and the brain restless. It is not too much to assert that dogs when lulled to sleep, and the functions of their bodies are suspended or at comparative rest, are, like human beings, capable of dreaming, and that their memories recall in their dreams those transactions of the past with which they have been identified. Watch the motions of a dog when asleep, and you will easily perceive, by the character of those motions, or the sounds he may utter, what are the particular pursuits in which, in imagination, he is engaged.

Youatt says: 'In his dreams the dog runs, he hunts, he fights, expresses joy or displeasure, by certain sounds and motions when his external senses are asleep.'

There can be no doubt that when a dog growls in his sleep it indicates that in his dreams he is in unpleasant collision with something or other; but should there be a few wags of his tail, it implies that his dream is a pleasant one, and that he is engaged in that which is in all respects agreeable to him.

Anecdotes of Dogs.

A Singular Dog Story.—A singular instance of intelligence on the part of two dogs is recounted by a correspondent of the *Cologne Gazette.* A farmer near Barmen has a number of rabbits, and for about a fortnight one of them disappeared mysteriously every night. The cage in which the rabbits are kept was made out of a large wooden box, about a yard high, closed on all sides with the exception of a small hole about ten inches in diameter on the upper part, and this aperture was shut by a heavy board every night, weighed down by stones. At last the farmer determined to watch one night, and did so after covering the board with more than an ordinary allowance of stones and turf. At the usual burglar's hour—one o'clock in the morning—he saw two dogs, one a large half-bred sheep-dog, and the other a small terrier, come up to the box. The big dog raised himself on his hind-paws, scratched away the stones and turf, and after pushing the board on one side, lifted up his companion, who then got through the hole into the box and presently returned with a rabbit in his mouth, which was taken possession of by the big dog, the two then quietly retiring to enjoy their booty. The big dog was recognised by the farmer as being one notorious in the neighbourhood for surliness and savageness; and how the two came to an understanding is a curious question in animal psychology.

'*Railway Jack.*'—There are many anecdotes related of Jack the 'Railway Dog,' as to his roving propensities, respecting which one writer says: 'He affects a liking not only for the Brighton line, but also for the South-Western as far as Southampton. He has also been to Exeter and other distant places, and has, it is stated, even been seen on the platform at

Edinburgh. Jack, on Sunday, was one of the spectators at the funeral of poor John Isgar, the late head porter at Lewes Station, who was very fond of him. He followed Mr. Moore, whom he looks upon as a sort of master, into a pew, despite an attempt to prevent him, and sat down with decorous gravity, as though aware that something serious was impending. Following the *cortége* to the grave, he looked on in a puzzled manner, but with a quiet interest, as if he well knew that an old and faithful servant of the company was being laid in the earth. There is that in Jack's face which tells of sagacity and intelligence, and it is this which in some measure gains for him so much notice from the passengers, independently of his travelling notoriety. Jack, by-the-bye, makes a wide distinction in his behaviour towards the guards and porters, running to the former with evident pleasure, whilst treating the latter with amusing disdain. What little home he has he makes at Lewes Station.'

However clever and sagacious dogs may be, they are liable to great misfortunes. After all poor Jack's adventures and hair-breadth escapes, he one night met with a fearful accident. In the *East Sussex News*, issued in February, 1882, it is stated that one night the dog was at Norwood, when, through transgressing the company's rules, in crossing the metals he came to grief. It appears he rushed across the lines and tried to land on the platform, and fell. Before he could recover himself, a fast train came rushing along; the wheel of the engine passed over one leg and foot, crushing them in a fearful manner. He was, however, picked up, treated tenderly, and conveyed at once to Lewes. A veterinary surgeon was sent for, to see if there was any chance of saving Jack's life. Everything that a knowledge of the veterinary art could suggest was done, and after great care, skill, perseverance, and humanity had been shown, old Jack's condition so improved as to give hope of coming successfully out of his terrible ordeal of suffering and exhaustion consequent upon the amputation of the injured limb.

A Cunning Dog.—A gentleman, well known to the author, had a very fine intelligent retriever dog, who now and then required a little correction, which he generally received from a whip kept in the front-hall of his master's mansion. These floggings at last became very objectionable to the dog, and the

whip an object of his antipathy, so much so, that, as the sequel will show, he was determined to get rid of this instrument of correction. One day when the whip was required it was nowhere to be found. Everyone in the house was questioned about it, but all of them were ignorant of the cause of its disappearance; and so for that day the dog escaped punishment. Time went on, but nowhere could the whip be found.

Some weeks afterwards the gardener was digging in the kitchen-garden, and there found, buried in the earth, the veritable whip which had been missing so long. It was supposed, and no doubt correctly, that the retriever dog was the sexton, which office he had assumed for the nonce, with an idea that the interment of the whip would save him from future castigations.

Might not the dog reason in this way: 'There hangs, or lies, the whip, always in the same place; my master knows where to find it, and when I need correction the thing is ready to his hand, and I am made to suffer; to prevent this in future I'll hide the whip,'—which he proceeded at once to do. If dogs can be proud of their own actions, the retriever must have congratulated himself on the result of his inventive faculties, and the ingenious plan he had adopted to escape correction.

An Heroic Dog.—In the year 1867, when the Gloucester lifeboat was launched, in the Victoria Docks of that city, it was deemed necessary for two men to throw themselves into the water in order to show the great utility of cork-jackets in keeping the upper part of the bodies of their wearers when in the water above its surface, to save them from drowning. Amongst the thousands of spectators who were watching the men floating about was a Newfoundland dog, who became much excited at what he, no doubt, considered to be the perilous condition of the men. He ran hither and thither, barking very furiously, and trying in a thoroughly doggish way his very best to prevail upon some one in that large multitude of human beings to go to the men's assistance. Finding no one did so, splash into the water he went, and swam direct to the men, one of whom he caught by the sleeve, with the intention of helping him out of danger. A struggle ensued: the man tried to shake the dog off, but it

was of no avail. The dog would not relinquish his hold until two men in a small boat went to their rescue and took them both into it. They were then safely landed on the quay. The dog evinced some pleasure in seeing the men once again on *terra firma.*

If the dog was ignorant of the uses of cork-jackets he had a perception of danger, and therefore, impelled by an almost humane feeling, and prompted by a generous heart and true heroism in what he did, plunged into the water to save the men he thought were running the risk of losing their lives. No *selfish* motive tarnished this dog's most noble act.

Our Gyp and the Bird.—A friend of ours, who is very fond of animals, procured about two years ago a small English singing-bird, which soon became a great favourite with all the inmates of the house, who were charmed by the musical notes which often during the day it poured forth with marvellous clearness, volubility, and sweetness. So far from evincing any sign of timidity or fear when anyone approached its cage, it would, by various rapid movements of its wings, and a sweet, subdued kind of twittering, show its delight in being noticed and attended to. There was, however, one drop of bitterness in this bird's 'cup of pleasure,' caused by the presence of a small Maltese dog named Gyp, who was also a great favourite, and allowed a share of the same room and attention as those enjoyed by the bird. But whenever Gyp came near the cage, the bird would become excited, hop rapidly from perch to perch, and utter a peculiar cry indicative of distress and fear, as if apprehensive the dog intended to do it some 'grievous bodily harm.' When Gyp left the room, the bird would resume its wonted placidity, and then break out in full song, as if grateful the obnoxious dog had taken the hint, from its fear and flutterings, that its presence was by no means agreeable to it.

That Gyp had no garotting or felonious intention in reference to this little feathered singer, and that the fears and apprehensions of the latter were unfounded, the following curious incident will show: One fine summer morning our friend took the cage with the bird in it, and hung it against the garden-wall, but did not notice that the door of it was unfastened. Birdie soon discovered this, and at once perched itself at the opening, with nothing to prevent its escape.

This, however, it did not attempt to do for some minutes. During this time a ferocious-looking cat, crouching like a tiger, was upon the wall, watching very intently the movements of the bird. Gyp had followed her mistress into the garden, where she remained, as her eye had caught sight of the cat on the wall, and, it would seem, comprehended also the hazardous position of the bird, and the great risk it would run of losing its life if it flew from the cage on to the ground. If the feline watcher was contemplating a delicious morsel in the body of the little songster, which he no doubt intended to capture and then devour, Gyp was equally intent upon protecting the bird, if she could, from such an ignominious fate. It is evident the bird had flown from the cage to the ground, for after the lapse of a few minutes Gyp, with something in her mouth, ran into our friend's room. 'What have you got there?' she asked the dog; and then putting her hand to Gyp's mouth, her little bird-singer dropped into it, and, strange to say, not only not dead, but in no way injured. So gently and tenderly had Gyp carried the bird from the garden into the house, that scarcely a feather was out of place. The cage was soon brought back to the room, and its occupant securely placed therein. Ever since the above incident occurred, the bird has never shown any sign of fear when Gyp has made her appearance. It will now even sing its song in the presence of the dog, and thus seems to show not only its gratitude for being saved from death, but the greatest confidence in Gyp as its friend and preserver. Does not this simple story show that animals have intellect enough to know when others are in danger, as well as demonstrating the power which the kindness shown by one animal may have over another, although belonging to a widely different family?

'*Dignity and Impudence.*'—One day when in Gloucester, we witnessed a practical illustration of that beautiful picture of two dogs, one large, and the other small, representing '*dignity and impudence.*' A very fine Newfoundland dog was following his master, who was walking leisurely along one of the main streets, when suddenly a little wiry-haired, snarling cur, catching sight of his canine but distant relative, came out of one of the shops and exhibited towards him a great amount of barking indignation, as if he thought it was very presumptuous on the part of a strange dog to make his appear-

ance in the streets of that ancient city. The cur might as well have barked at the steeple of the church, or even at the moon, for any notice the big dog took of his noisy demonstration. Whether the cur was offended at not being noticed, or whether he was conceited enough to think he was sufficiently strong and plucky to have 'a set-to' with the Newfoundlander, or what, we know not. This much is certain, he caught the large dog by one of his hind-legs, and no doubt gave him a sharp grip. This was not to be tolerated. The cur's noise was harmless, but his bite was a piece of daring effrontery which required chastisement. So turning round, and looking with dignified but silent contempt at the cur, he put one of his large paws on the creature's back, and pinned him down to the pavement, and there held him as fast as if he had been in a vice. The cur yelled terrifically, and struggled with all his might to liberate himself, but in vain. The noble Newfoundland dog, thinking he had punished the cur sufficiently, let him go, which he was feign to do without making the slightest attempt to renew the attack. With his tail between his legs, he scampered towards home with all speed, his castigator watching his exit with apparent pleasure, and, perhaps, with a knowledge that he had taught the impertinent cur a practical and useful lesson.

Timely Deliverance through a Sagacious Dog.—A clergyman residing at Sunderland, a small fishing village near Lancaster, had been dining with some friends about three miles off. He left their house, accompanied by a small dog, to return home between ten and eleven o'clock p.m. For the purpose of saving time and distance, he took the sands of the seashore, the tide being out at the time, observing for his guide a lighthouse situated at the mouth of the river Lune. By taking this course he would save about a mile. The night was dark. He walked on and on for a considerable time, but was surprised in not finding himself sooner at his destination. The painful truth of having been misguided, and that he had therefore missed his way, now flashed on his mind, as he found himself being surrounded by the flowing tide. He knew not what to do. His danger became imminent. He shouted for help and guidance; but he was beyond all human hearing. His situation was a perilous one. He saw no way of escape. Death stared him in the face. He therefore

gave himself up for lost. He then knelt down, and committed himself to the care of his Maker, expecting that a few brief moments would terminate his life. Just at this fearful moment his faithful dog, which in his perplexity he had forgotten, rubbed against his leg. This brought hope and relief to his mind. 'What, Jock, is that you?' asked the clergyman. The dog, as if to assure his master that it really was he, wagged his tail, and looking earnestly into his face, whined very piteously, then ran a short way from him, as much as to say, 'You are in danger, but follow me, and you will soon be safe!' The clergyman did so—now through deep water, the dog swimming by his side or on before him, then crossing deep gullies, immersing him up to the middle in water. Thus, following his guide, he ultimately found himself in a place of safety; having by the fidelity and intelligence of his dog escaped an untimely end. The light the clergyman thought he had taken for his guide had been extinguished at an early part of the evening, and was that of another lighted farther out to sea. Hence the mistake, and the danger incurred.

Scotch Terrier and Kitten.—A friend of ours residing, some time since, in Islington, had, when there, a Scotch terrier who, though exceedingly intelligent, faithful, useful, and interesting in many respects, had a marvellously strong antipathy to cats; and although often reproved for his proclivity to run after them, and thereby to put them in bodily fear of being roughly used by him if caught, he stained his otherwise good character by killing about seven or eight of them. When the dog's owner went to see a friend, he had always to ask before he entered the house, 'Where's the cat?' which had to be put into another room, or out of doors, to prevent the terrier from adding another victim to the list of the 'killed and wounded' of his feline relations.

One day the rain had descended in torrents, the streets were flooded, and everything outside looked as wet and as wretched as it could do; the terrier was out, but no one of the family knew where. Towards the evening a scratching was heard at the front door. When it was opened, the servant saw the dog drenched to the skin, and holding in his mouth a small kitten, which looked more like a drowned rat than anything else. The dog rushed past the girl along the passage,

then down the stairs to the kitchen, dropped the kitten before the fire, then began to lick its body with his tongue, and continued to do so until the fur was thoroughly dried. By this process, and the warm fire, the little animal was soon all right, and became happy and contented in its new home. Although after this the dog never injured the kitten, nor interfered with its movements, he would not condescend to fraternize with it, or in any way specially to notice it. Was not this a proof that the dog had felt sympathy for his fellow animal in its wet and forlorn condition?

An Eventful Night.—Some years ago when on a visit to an old friend residing in Kent, we were invited by a gentleman to deliver a lecture, for the benefit of a public charity, in the town where he lived, five miles off. The title of the lecture was 'The Wisdom of God Displayed in the Arrangements of Nature,' illustrated by a large map of the eastern and western hemispheres.

When the lecture was over, we took some refreshment with the chairman of the meeting, which detained us until nearly eleven o'clock p.m. We then bade our host 'good-night,' and with map in hand, rolled up in a green baize covering, we emerged into the darkness and began our homeward journey. Having walked about two miles, we found a strange visitor at our side in the shape of a large black dog. After the lapse of a few minutes, we heard the sound of footsteps close behind. Two men were following, with whom we were very soon side by side. Each man carried in his hand a stick about as thick as a broom-handle, the weight and strength of which we expected soon to feel.

Just as they were passing, we said, 'Good-night, gentlemen,' although we did not think they were *gentlemen* any more for that. Neither of them answered, but both walked on until they got about twenty yards ahead, when they suddenly stopped, and began talking to each other. Although we could not hear what the men said, we conjectured they were planning an attack on us. We then seized our map with both hands and prepared for action.

If the intentions of the men were to rob, it is certain that the intervention of the dog caused them to alter them, as they soon turned round and walked quickly out of the wood, and we lost sight of them.

Resuming our journey, the dog continued to walk by our side until we saw the light in the house where we were to sleep that night; he then stopped, looked up into our face and wagged his tail, as if to say, 'You are now near home, and out of danger, but *I must return*, so—good night!' We patted him encouragingly; and called him 'A good dog, and a noble brave fellow,' for such he had proved himself to be.

Off he trotted, and we watched him with straining eyes until he disappeared in the darkness. For several days we made inquiries about him, but could obtain no intelligence as to whom he belonged, where he came from, or where he went to.



Water Spaniel.



CHAPTER XIX.

RELATIONSHIP OF MAN AND ANIMALS.



AN is the first and highest of all animals. Shakespeare, however, says—

'One touch of nature makes the whole world kin.'

If this be the case, we hope the comparisons we shall, in this chapter, draw between man and the higher order of vertebrated animals will not be considered to be invidious, because we believe they will not degrade man on the one hand, nor unduly exalt animals on the other. While admitting that great differences exist between the two, there can be no doubt they are more in degree than in kind; we shall therefore examine some of the points of similarity existing between man and animals.

Physical Relationship.—Although there are some points of difference in the physical organization of man and animals, there are many in which they are strikingly similar. Both have brains, the seat of sensation and intelligence. Their lungs are alike the receptacles of atmospheric air from which they equally derive that vitality which is essential to life. Both possess digestive organs and every function necessary to perpetuate their existence and to promote health and vigour of body.

The physical power of man and animals exists in their sinews, tendons, muscles, and bones, and through their veins, propelled by the machinery of the heart, flows the blood which is the life of both. Pliny says 'that it has been proved by analysis that the blood of a human being and that of an ox differ but slightly, if at all, in the quality and

proportions of the constituent parts of which their blood is composed.'

As in man, so in animals, good health imparts vigour strength, activity, and high spirits. Both are liable to diseases of various kinds, and these produce like results: their vigour, health, and strength decline; their step, once light and elastic, becomes heavy and languid; their eyes lose their wonted quickness and brightness; their appetites fail, and they seem to have lost all zest for life. Man dies of infirmity and old age; so will animals if not killed by any other agency. The hair on the faces of old dogs becomes grey, the joints stiff, and the limbs comparatively rigid, so as to render locomotion very difficult, and even painful. The same is the case with horses and other animals.

The physical necessities of man and animals are in many respects precisely the same. When hungry, weary, and exhausted, they equally require food, drink, shelter, and rest. The latter is obtained by them through the same medium which our poet Young calls:

'Tired nature's sweet restorer, balmy sleep.'

Animals, especially the horse, dog, elephant, beaver, and other quadrupeds, possess, as well as man, what are commonly known as the five senses. In referring to these we shall not attempt to explain the organism of the eye or of the ear, nor yet to define that of the olfactory nerves or the peculiar properties of the palate, nor of the nervous network spread over the surface of all animal bodies in a more or less sensitive degree; but will rather refer to them in general terms, to show that animals, as well as ourselves, are furnished with them.

The Sense of Seeing.—The pleasures of life would be very much less than they are to man and animals, were it not that both are furnished with 'that beautiful instrument the eye, which is so delicately and artistically formed that no human ingenuity could ever improve upon it.' In nearly all forms of life the eye is globular, and placed in the most convenient part of the body, namely, the head, and close to the vital part, the brain, so that it may, in the shortest time possible, receive through the eye the image of external objects. As in man, the eyes of quadrupeds and birds are protected by a bony case or socket.

In man, and animals who live by hunting, the eyes are in the front of the head, and so made to look forward. The eyes of horses and birds are situated more at the sides of the head, so that they can take in a whole hemisphere. Those of hares and rabbits are not only so placed, but are very protuberant, that they may see the animal by which they may be pursued. In human beings and most animals the eyes move mechanically, and can be made to do so at will, excepting those of spiders, flies, and owls. For this lack of moving power spiders have six and eight eyes each; those of flies are of a reticulated texture, and multiply the same object many times over; and the owl has the power of moving its head round so as to look down its own back. When particles of dust get into the eyes of men and animals, they produce the same painful effect, and in both cases the lachrymal glands supply water to move or wash out the dust.

The chameleon has large eyes, and possesses the power of moving each independently of the other. It can look upwards with one eye and downwards with the other, and so look two ways at one and the same time. As in man, so in animals, the eyes have lids to protect them from injury, and to shut out all external objects, so that during sleep the attention may not be arrested, nor the rest disturbed by them. In nocturnal birds, and those whose flight is in the full splendour of the sun's light, such as falcons and eagles, the eyes have a nictitating membrane, which, like a lady's veil, breaks or softens the power and glare of the bright sunshine.

It is somewhat curious, if true, that the vision of some savage tribes of men is keener and more extended than that of civilized men, and that the sight of those birds we have mentioned, and that of others, is far keener than that of savages.

Some races of men have large liquid-looking eyes; some have fierce and fiery eyes; others have bright, soft and languid eyes; and some show a beautiful pearly lustre; and all these may be of various colours.

The eyes of many of the lower animals are very beautiful; there is 'the bold, bright eye of the eagle; the large, gentle, brown eye of the ox; the green eye of the cat, waxing and waning; the pert eye of the sparrow; the sly eye of the fox; the little bead of black enamel in the mouse's head; the gemlike eye of the toad; and the intelligent, affectionate expres-

sion which looks out of the human-like eye of the horse and the dog.'

The Sense of Hearing.—This sense is hardly less important, necessary, and useful than that of seeing. The sense of hearing supplies to us many advantages the eye alone could not do. By the faculty of hearing we can almost instantly receive the thoughts, wishes, and requirements of others. By it we may recognise in certain kinds of sound the proximity of many things, and even the approach of danger, which the eye, unaided, could not enable us to do. By it the pleasure of life is enhanced, because we can hear not only the harsher voices of nature, but her sweetest music—whether it comes from the sighing zephyr, the humming of insects, the notes of birds, the murmuring brook, or from the sweet sounds of musical instruments.

Like the eye, the ear is placed near the brain, to give information the more readily. The outward ear is in shape well fitted and adjusted to the peculiar occasions of each respective animal. In man it is of a form proper for the erect posture of the body. In birds and moles it is not protuberant, because that would obstruct progress. In nocturnal birds only is there an outward ear, which is a wise ordination of nature, as they have to find their food in the dark.

In most quadrupeds the ears are long, and in some cases erect. The horse and donkey, as well as many other animals, have the power of directing the open part of their ears forward, sideways, or backwards, just as they please. Sometimes one ear will be turned to the front and the other to the back at the same moment. Man needs not this power, because he can more readily and easily turn his head than four-footed animals are able to do. All ears, whether those of man or animals, that are large enough to admit through their tunnels earwigs and other insects, are guarded by barriers to prevent intrusion and annoyance. First, there are minute hairs growing in the openings of the ears. Second, the ear-wax, which is too nauseous for insects to like, prevents them from entering. In those birds whose ears are covered with feathers, no ear-wax is found or needed.

The sense of hearing in most animals is marvellously quick. It is said that spiders hear very acutely, and have been known to be attracted by music. 'Bees recognise the voice of their

keeper. Fish can hear distinctly. Carp distinguish the sound of a bell and the voice of their keeper when called to be fed.'

Birds have quick hearing; a most necessary advantage, because their sight is so much intercepted by the grass, corn, or foliage among which they look for insect food. Some birds not only know the voice of their master, but distinguish its intonation, whether as coaxing them or calling them to be fed.

'Carrier horses in Switzerland hear the fall of an avalanche, and warn their masters of the danger by their terror, and by refusing to advance although a mile or two distant.' Dogs hear so quickly that they can distinguish between the footstep of a stranger and that of their master.

Persons who have been deprived of sight have usually very quick hearing; and it has been stated that horses who have lost their sight by accident hear better than formerly, which seems to imply that the loss of one sense really improves the others.

Animals, as well as ourselves, are fond of, and variously affected by, music. A donkey, belonging to a lady at Guerville, was observed always to leave off grazing whenever he heard her playing on the piano, and to listen to the music very attentively. On one occasion, when she sang as well as played, the donkey seemed more than usually delighted; so much so, that he approached as near to the open window of the room where the lady was as he possibly could, and there remained until the music and singing were over. He then brayed with all his might, which we may reasonably suppose was an indication of the great pleasure he had derived from both the vocal and instrumental music to which he had so quietly listened.

It is well known that horses may not only be taught to keep step in proper time to music in quadrilles, but that they really feel pleasure in taking part in such performances.

We know a pet dog who never seems to be in the least affected by the sound of the upper notes of a harmonium, but who becomes almost frantic when he hears the sound of the lower ones. Raising his head and fixing his eyes on the ceiling, he will howl most dismally, and continue to do so until the music ceases.

The Sense of Smelling.—That animals possess also the sense of smelling there can be no doubt, although it might be diffi-

cult to prove that they feel equal disgust in the presence of offensive bodies, or derive as much pleasure from the perfumes of sweet flowers, as do human beings.

In man the sense of smelling is of infinite value, not only as regards his health and protection against disease, but even in his business. This is particularly the case with chemists, who have to deal so much with poisonous drugs. Although all unpleasant smells are not injurious to health, some of them are. The olfactory nerves of man tell him when he is inhaling vitiated air or the effluvia arising from decomposing animal matter. These nerve sentinels warn him, and he is wise to listen to them.

Birds of prey no doubt scent their food, and often at great distances. We have known instances in which the dead body of a sheep has lain in a ditch partially covered over with long grass, for some days undisturbed; but as soon as decomposition has taken place, a dozen or more carrion crows have been attracted towards it, by whom it has been ravenously devoured.

Dogs hunt by smell, and trace their lost masters by the same faculty. They will also smell truffles in the earth, and scratch for them. Cats are attracted by valerian, and rats by essential oil. Lambs know their mothers, shorn of their fleece, by smell. A fox will avoid its earth, or hole, many days, if a terrier dog has been near it. Well-fed dogs and cats carefully smell the food offered them before they attempt to eat it. Should it be disagreeable, they turn from it in disgust.

The Sense of Tasting.—All animals are less or more endowed with this most useful and necessary sense. In regard to the fitness of some kinds of food for the sustenance and health of the body, the senses of seeing and of smelling are not at all times infallible guides. But if what these senses object to is disagreeable to the taste or palate, it is rejected—taste being the umpire which usually decides for us

'What to eat, drink, and avoid.'

There are, however, some things which the sense of taste may object to that are by no means hurtful to the system.

In all ages and countries the palate has been, in the selection of articles of food, generally consulted, and has become in this particular an almost despotic dictator. Men called

'tasters' are by no means uncommon. There are tea-tasters, wine-tasters, cheese-tasters, and royal personages usually have men in this capacity, although in the latter case it is more as a precaution against the dishes being tampered with.

Animals are not, however, aided in this way; they are left to the impulses of their own individual nature, and to the law of instinct by which they are controlled and guided in this matter, and nearly in everything which concerns them.

Some animals have but little taste. Fishes, whose mouths are gristly and hard, and many kinds of reptiles who swallow their food whole, have the sense of taste but in a rudimentary degree.

Insects have their tasters, especially those who suck the juices of different kinds of fruit. In the autumnal season of the year we may often see in our orchards the fruit of certain kinds of trees sound and perfect, while that of others has been partially eaten by wasps or other insects, and so much damaged as to be unfit both for the market and the table. These insect invaders usually select the best and the choicest of fruit to feed on, and which they no doubt find out by the industrious use of the tasters with which they are supplied.

Those animals who are furnished with tongues and salivary glands know well what kind of food to accept and what to reject.

Although in our pastures, and in the wild wide wastes and mountainous districts of the world, plants and herbs of every kind may grow, some of them rank poison, and in other respects injurious, yet herbivorous animals know which to pass over, and will eat those only possessing medicinal and sustaining properties. To this rule exceptional cases have been known to take place, but they are extremely rare.

The Sense of Feeling.—In man this is an almost universal sense. More or less every part of his body is capable of feeling when subjected to undue pressure, to a severe blow, or when seized with any of the pains and maladies to which he is liable. According to physiologists, this is owing to a nervous network spread over the entire system, and which being connected, like so many telegraphic wires, with the spinal cord, has direct communication with the brain, the seat of sensation and intelligence.

While many parts of the body are particularly susceptible to touch, the fingers are probably the most sensitive of all. The properties of bodies, whether they are hard or soft, hot or cold,

smooth or rough, may be known by the touch. Different materials, such as iron, lead, chalk, clay, wood, cloth, velvet, flannel, silk, fur, feathers, wool, hair, flesh, corn, fruit, and flowers, and many other things, may all be determined, without the aid of sight, by the fingers alone.

Blind men, by simply running their fingers over raised letters, read their Bibles or other books as correctly as those do who have their eyesight. The toes of the human body are also very sensitive, and seem to be, like the fingers, specially furnished with the sense of feeling. Many years ago a man without hands used to sit at one end of the old Westminster Bridge to dispose of slips of paper, on which he had written a few lines with a pen placed between his toes. The writing was regular, clean, and very legible. In this way the poor man supported himself for years.

Although the brains of horses, dogs, and other animals, may be very inferior in quality and power to those of man, there can be no doubt that there are direct mediums of communication between them and every part of their bodies. For instance, a farrier drives a nail into the lamina of a horse's foot. What does the animal do? As soon as the message from the foot has reached the brain, through or by means of the nervous system, he raises his foot, shakes it, and turns his head in the direction of the farrier, as much as to say, 'I know what you have done; just draw that nail out, and put it in properly.'

Birds' bills are delicate organs of touch, particularly those of the swimmers and waders, who cannot, in all cases, see their food, but simply depend upon the sensitive membranes at the end of their bills for the selection they make in the food they find.

The cartilaginous noses of pigs, moles, and other animals, are furnished with a marvellously sensitive membrane by which they are guided in rejecting some things and accepting others as articles of food. The nose or proboscis of the elephant is so perfect an organ of touch that although this animal could move a cannon with it, he can also pick up the finest sewing-needle with facility.

'Among the mammalia, the lips, the extremity of the nose, and the bristles surrounding it, exercise the principal functions of the touch. It is said that the whiskers of the

rodentia, the feline tribes, and of seals, possess a great degree of sensibility, particularly at the roots. Cut off a cat's whiskers, and she will not be able to mouse.'

Man, in his physical nature, often suffers by severe cold, and by intense heat. So do animals, particularly those of the temperate zone that are domesticated.

Some animals seem to have a *peculiar* sensibility to atmospheric changes; for instance, donkeys bray more just before rain than they do at any other time. It is then that cats wash their faces, and dogs become sleepy and dull, and when their stomachs being out of order cause them to eat grass, to howl in the night, and to scratch holes in the earth.

The body of man may not only become fatigued and almost exhausted by excessive labour, but every limb, joint, and muscle may be so pained by different maladies that it is almost racked to pieces, while the most violent sweating oozes from every part of the system. It is the same physically with the lower animals, especially our working ones, who become wearied and exhausted by long journeys, or emaciated and weakened through want of food.

How much horses and cattle feel the cutting lash of the whip, the heavy blow of the cudgel, or the probing nail of the drover's bludgeon, they are not able to tell us, only by the dread they show of these things, and the writhings of their bodies under these instruments of cruelty and torture. Who can recount the acute pains animals often endure when they meet with accidents, or have any functional derangement in their system? Who can comprehend the suffering inflicted upon them by internal disorders, by inflammation in the feet, lungs, mouth, eyes, and throat, and by raging fevers which often consume, by a most painful process, the strength and vitality of their bodies? Or who is to measure the amount of pain they feel when compelled to work with galled backs and sore shoulders, and it may be with partly dislocated joints, and when urged on by brutal drivers to do more than they are able to do?

Their moanings, the nervous excitement they show when they see or hear the voice of those who use them cruelly, prove how acutely they feel, how sensitive they are, and how great are their sufferings. In the last scenes of existence how many things there are in man and animals that

are alike. In both there is the gradual ebbing out of life; the failing strength, the weakening pulse, the closing of the bright and intelligent-looking eye, the last convulsive start, and then the subsequent coldness and rigidity of the once active but now lifeless and motionless body, which in both cases now tends to decay.

Horses, dogs, birds, and other animals who are endowed to some degree with mental capacities, can feel as well as ourselves emotions of joy and of sorrow. The horse that hears the voice of the man who treats him well will not only willingly obey his commands, but often give him, after a short absence, the neigh of recognition; the dog watches the kind expression of his master's eye, and evinces his joy by sundry wags of his tail; the cat feels the gentle touch and caresses of its mistress's hand, and gives her proofs of its joy by many purring utterances.

Pigs and fowls of the farmyard grunt and cackle their grateful feelings for kind treatment; and our little feathered pets will, in return for the notice we bestow upon them, chirp the pleasure they feel, or show it by outbursts of sweet songs of joy.

The young of animals, like children, are fond of play. Lambs skip, gambol, and run their races. Calves indulge in singular frolics. The foal starts off round the pastures, as if in anticipation of a successful race on Epsom Downs. Kittens find pleasure in attempts to catch their own tails, a piece of loose paper, a cork, or ball of worsted; and puppies will play with each other in a game of 'rowley-powley' over.

But the young of the human race, and those of animals, as they advance in age, discard these things, and settle down into a more quiet, demure, and practical condition of life. They like neither their habits nor their pleasures to be interfered with, and both say plainly, 'they won't have it.' If the mother dog be dozing she growls disapprobation if her puppy son takes a liberty with her tail; and the cat-mother chastises her kitten by slapping its face with her paw.

Animals, like ourselves, feel mental pain. Horses fret when they lose a companion, and have often been known to refuse their food. Birds will pine for their lost mates, and become silent in song. The lion and other wild animals, robbed of their young, will make the woods ring again with their roaring. The mother sheep will give the most mournful bleat-

ings when she loses her lamb. Dogs and cats become inconsolable when their owners die, and when their offspring is taken from them.

Horses who pass from the hands of kind masters to those of cruel ones become dispirited; they not only know the change and feel it physically, but they no doubt compare the difference between their former and present condition, and become unhappy thereby. The last days of some of our noble and beautiful race-horses are often of the most deplorable kind. How can they look back upon the time when they were universal favourites, petted and praised by their masters for the money they have won them; when every care was bestowed upon their bodily comfort, even to allowing them to have their *siesta* after their morning's exercise, and their legs to be bathed with port-wine after a hard run on the racecourse; and comparing all this with their present sad condition—it may be drawing a cab or dung-cart—not feel the keenest mental anguish?

Man, through sorrow and bodily suffering, often sheds tears. And it is a fact that the seal, the giraffe, the camel, the horse, the dog, the elephant, and the donkey, have been known to shed tears. This is not maudlin sentimentality, because there is none in the stern facts and realities of nature.

In concluding these comparisons between man and animals, we may say that their corresponding susceptibilities to physical and mental pain produce alike a feeling of sympathy for those in suffering. A wounded crow left in a field is soon surrounded by its fellows seeking to assist it. A pig caught in a gate, or undergoing any domestic operation, will have the sympathy of the rest, who will gather round to see what is going on. When a dog gives the howl of pain, all the dogs within hearing will begin to bark simultaneously. In Mr. R. Ansdell's beautiful picture of a man dressing the injured leg of a fine dog, we have a splendid illustration of the sympathetic feeling of two other dogs present at the time; one represented as looking mournfully on, and the other with his head raised and mouth open, giving full vent to his canine sympathy with his suffering companion. The screaming of a fowl caught in a trap sets the whole of the fowls in a cackling uproar.

More or less throughout the domain of the animal kingdom, its various tribes proclaim their sympathy one with the other.



CHAPTER XX.

CAN ANIMALS TALK AND REASON?



VERY effective picture of an intelligent-looking dog, and of a child peering into his face, and asking him the question, 'Can't you talk?' first suggested to us the idea of writing a short chapter on the above subject. This may, at first sight, appear to be an absurdity, as animals are usually called 'dumb'—therefore the 'language of dumb animals' seems to sound very paradoxical.

The word 'dumb,' however, in this case, is a mere relative term applied to the lower animals only, because they are not able to use words and sentences in the same way that human beings do. When we consider that men use symbols, letters, words, and sentences for the communication of their thoughts one to another, and which they are capable of doing because they have intellectual power, is it not reasonable to suppose that at least the higher order of vertebrated animals, who have also mental capacities, should possess some means of making known their thoughts, wants, and wishes to those of their own tribes? This, we think, is unquestionably the case. We shall therefore endeavour to point out the particular way in which they do so.

There are many sources of pleasure available to man. He may gaze with wonder and delight on the beauties of the earth; on the blue sky above him studded with myriads of glittering star-gems; he may listen with rapture to the notes of sweet music, or the soft voices of nature; and he may feel the purest joy in looking on the features of those he loves; but he may find a still greater source of pleasure in inter-

change of thought with other men, and in being able, not only to communicate by language his wishes to others, but actually to realize their wants and wishes, and to have an opportunity of gratifying them. This is the grand link which binds men together in the bond of brotherhood, and gives to life its greatest zest.

In the creation of animals, Almighty Power had, at least, a threefold object in view: (1.) That in their life, and by the marvellous way in which it is sustained, they should glorify the Creator. (2.) That they should enjoy pleasure in that life. (3.) And that on certain conditions, and within certain limits, they should be used by man, who is to exercise a lawful dominion over them, not as a tyrant, but as a protector and defender of their rights.

Who can say that animals do not find pleasure in nature's beauties, or that they are not delighted with the strains of music given by man, or poured forth from the warbling throats of our woodland singers? That they do so, and are so, we have abundant proof; while we cannot doubt that they can also, in their way, communicate their thoughts and wants one to another, especially to those belonging to the same tribe. As they have some degree of intelligence and capacity of enjoyment, why should they not also participate in that great pleasure of an earthly existence which is derived from an interchange of thought with each other? To doubt this seems to be opposed to the merciful purposes of a just and benevolent Creator.

What is Language?—In its commonly accepted and popular sense, it is the expression of ideas by words or significant articulate sounds for the communication of thoughts. Language may also, in other ways, be vocal, and it may consist of signs, looks, and of certain movements of the body, which is particularly the case with insects and very small animals.

Although language has particular and almost exclusive reference to human speech, some of the lower animals can remember and distinctly utter words and sentences, as well as having the power of imitating different voices and sounds. Some parrots will imitate the barking of a dog, the mewing of a cat, bleating of sheep, lowing of kine, chuckling of fowls, grunting of pigs. They will whistle, laugh, scold, evince joy and displeasure, almost as effectually as human beings can

do. The jay can imitate the bleating of a lamb, the note of a hawk, the hooting of an owl, and the neighing of a horse.

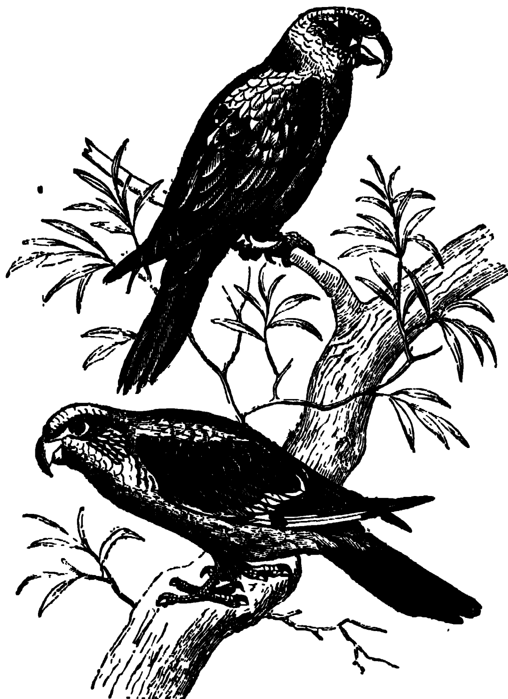
Spelling Parrot.—Parrots, magpies, jackdaws, and ravens have been known to repeat whole sentences almost as correctly, both in tone and articulation, as many human beings do. For instance, we were once having refreshment in a house in Stroud, when we heard a gentleman in an adjoining room ask the following question: 'Polly, where do you live?' A distinct voice, which we at first thought was that of a child, answered, 'Stroud.' 'Can you spell it?' 'Yes,' was quickly spoken. 'Let me hear you.' 'S-t-r-o-u-d, Stroud,' was spelt out letter by letter, and the word well pronounced by what we afterwards discovered to be a *parrot.*


The Jay.

'Hold your row there, do!'—One day when conversing with a friend in Acton, two of his children were amusing themselves together in the same room, when our attention was suddenly arrested by the following sentence, 'Hold your row there, do!' uttered in a peremptory manner, and in a very loud, distinct tone of voice. 'Who ever is that?' we asked. 'Oh,' said our friend, 'it's only the parrot;' which was a very fine specimen of the African grey kind. 'She's an amusing bird, and very clever, too,' said our host. 'Now listen, while I ask her a question. Polly, what is the matter with you?' 'Nothing,' replied the bird. 'Then go and hang yourself,' he said. 'So I will,' responded Poll. She then, with her beak, laid hold of a wire at the top of her cage, from which she suspended herself, gave a shiver, clapped her wings close to her sides, stretched her legs straight out, closed her eyes, and became perfectly motionless, and looked literally as dead as 'a door-nail.' She remained in this position about a minute, when our friend said to her, 'That will do, Polly.' She opened her eyes, and was instantly on her feet again. 'All right,' said the bird, as if glad that the ordeal, even of that

kind of hanging, was over. She then became very lively and amusing by her great loquacity.

A Parrot Catching a Burglar.—A London burglar has just had seven years' penal servitude awarded him through the instrumentality of a parrot. Henry Raale, nominally a baker, recently broke into the house of a Mr. Wyatt, and stole several



Parrots.

articles, amongst them Mr. Wyatt's parrot 'Sarah.' The owner on discovering the robbery of his house and the abduction of 'Sarah,' went to Mr. Jamrach, the dealer in wild and foreign animals, and mentioned his loss. While telling Mr. Jamrach that his parrot was called 'Sarah,' a parrot in the back shop overheard the conversation, and im-

mediately joined in it, by repeating the word 'Sarah' several times. Mr. Wyatt went to the bird and discovered that it was really his own 'Sarah,' and learned that it had been sold to Mr. Jamrach that morning by the prisoner, who had given his name and address. A detective went to the prisoner's house, where he found the property stolen from Mr. Wyatt, with the proceeds of several other robberies.

An Inquisitive Parrot.—The following interesting information was given to us by a gentleman residing in Surrey respecting a parrot he had who was not only very knowing but a great talker. In the summer-time, Polly was usually placed in the hall near the front entrance, so that she could see every person who might pass in and out at the door. She had paid such particular attention to the questions put by the servants to those who came to the house to see the master or any of his family, that at last she acquired the habit of being very inquisitive, especially with strangers. For instance, she would sometimes ask, 'What's your name?' The answer being given, she would then ask, 'Who do you want?' The reply might be, 'I want to see Mr. L——.' 'Then Mr. L—— isn't in,' the bird would say. 'What's your business?' would be Polly's next question. This being explained, the parrot would laugh and cry, 'Ho! ho! ho! He won't see you, no! no! he can't see you. Go on, go on, go on! ho! ho!' If anyone of the household happened at the time to make their appearance Poll would alter her tone, and pretend to be affectionate and solicitous about their welfare by saying, 'Good-morning. How do you do, my dear?' These and many more sentences Polly had learnt to articulate, so that she was an almost constant source of amusement to those who lived in the house, and to visitors who called there.

It's School-time.—A parrot placed at the outside of a cottage in which a school was kept, would say to the children, 'Come along, come along! it's school-time, come along!' no doubt in imitation of the teacher who was in the habit of giving the same invitation to her pupils who might be playing outside.

An Imitative Magpie.—Many years ago an old woman named Gill, who resided in the North of England, was so negligent in matters relating to personal cleanliness that she was generally spoken of as 'Mucky Peggy Gill,' sometimes with additions of no very complimentary kind. Her next-door

neighbour had a magpie who not only had good eyes and ears but was very observant and imitative, and possessed withal a retentive memory. Whenever the bird saw the old woman she would invariably salute her with 'Peggy Gill, you mucky wretch! Peggy Gill, you mucky wretch!' indicating that she was so considered to be by unfeathered bipeds.

A Provoking Magpie.—While we were standing in the doorway of a cottage in Old Sodbury one fine summer morning, a waggon and four horses were driven to the village inn, by the sign of 'The Dog,' a little way below and on the opposite side of the road. The waggoner had no sooner entered the inn than a voice distinctly called out, '*Gee up! gee up!*' The horses moved on, when out came the man, who stopped them by a stentorian '*Whoa! whoa! where be a-gwoing?*' Immediately after the driver re-entered the inn, the same voice again called out, only in a louder tone, '*Gee up! gee up! gee up!*' The horses simultaneously put their shoulders to their collars, and were proceeding up the road, when the waggoner again roared out, '*Whoa! whoa! stand still will'ee?*' He then looked round to see who it was that had assumed his prerogative and authority as driver and master of the team, but he could see no one at all likely to interfere with his horses.

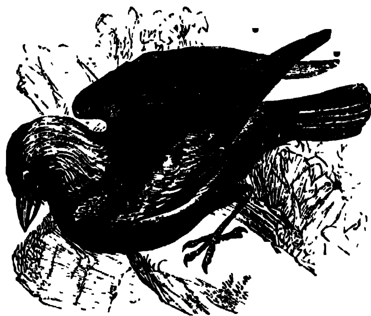


The Magpie.

He, however, no doubt suspected it was one of the village boys who had used the words '*Gee up!*' and who he thought was concealed somewhere close by; for he threatened him by saying, 'You young vagabone, if I gets hold on yee, I'll pull yer ears off, I wool, yer rascal!' To our surprise we discovered the order to '*Gee up!*' had been given by a magpie who was in a cage hidden behind a shrub two or three doors from where we were standing. The waggoner proceeded on his journey quite ignorant of the real cause of the little annoyance to which he had that morning been subjected.

We were still standing in the doorway, when an old woman, minus one eye, passed by us and went in the direction of the inn. Just as she got opposite to the magpie, the bird said in a distinct voice, '*Yah! yah! what, off to the "Dog" again! ya-a-ah!*' We ascertained that the old woman was constantly going to the inn, being very partial to 'A drop of something short.' The neighbours would often remark when they saw her going there, 'The old woman's off to the "Dog" again,' which remark the magpie had often heard, and took care to use whenever occasion required.

Jackdaw and the Squire.—Between a rich old squire and a carpenter, both of whom resided in the same village in Yorkshire, such an unfriendly feeling existed that the carpenter adopted every means in his power to annoy the squire, without, however, rendering himself amenable to the law. The carpenter had a very intelligent and somewhat loquacious jackdaw, who had been taught by him to speak several words, and some few sentences. One of them was, '*Walk, rogue! walk, rogue!*' which the bird always uttered whenever he saw the Squire approaching, but never attempted to do so when any other person passed or repassed the house.



The Jackdaw.

The Tailor's Raven.—These birds are capable of education. Being docile in disposition, they have been trained to fetch and carry like a spaniel, to talk like a parrot, and to sing like a man. Goldsmith says, 'I have heard a raven sing the "Black Joke" with great distinctness, truth, and humour.'

A raven which had been kept in the Temple of Castor flew down into the shop of a tailor who took much delight in the visits of his new acquaintance. He taught the bird several tricks, but particularly to pronounce the names of the Emperor Tiberius and the whole of the Royal Family. The tailor was beginning to grow rich by those who came to see this wonder-

ful raven, till an envious neighbour, displeased at the tailor's success, killed the bird, and deprived the tailor of his future hopes of fortune. The Romans, however, punished the man who offered the injury, and gave the raven all the honours of a magnificent interment.

From the anecdotes we have given, it is evident that the birds referred to (and we may include others not mentioned) are not only capable of being taught tricks of various kinds, but that internally they are so organized that by training they can be made to use portions of human language. Whether this is a latent power common to the more intelligent animals, and requires only development by careful training and practice, is a point of great interest, and well worthy the investigation of those who study the physiology of the lower animals.



The Raven.

Animals, especially domestic ones, not only understand words and sentences, and answer to their names, but will obey certain orders that may be given to them by their owners or others. Horses will stop when they hear their drivers say '*Whoa*,' and go on when they hear them say '*Gee up*.' They will turn to the left or to the right according to the words used for the purpose.

Dog and Post-Office.—A friend has informed us that if, after he has written his letters, he should say, 'I'm going to the post-office,' his dog, which up to that time may have been dozing on the hearthrug, will suddenly jump up, frisk about, and be almost frantic with delight at the prospect of a run, evidently connecting that pleasure with the posting of the letters.

The Dog and Gun.—We knew a dog, one of the liveliest of his kind, who, when he heard the word '*gun*' mentioned, would run upstairs and get under the bed-clothes, where he would remain until called down. There were, no doubt, some unpleasant associations, known only to the dog, connected with the mention of the word '*gun*.'

All dogs, especially shepherd, drover, and performing dogs, perfectly comprehend all that is said to them having reference to their peculiar duties.

A dairyman we know has given a name to each of his cows, to which they will answer by coming to him when called. The donkeys, ponies, and dogs of costermongers understand slang phrases. It is said that on the levee in New Orleans, harnessed in drays, mules may be seen who understand the French, English, Spanish, and German languages. Their owners and drivers belong, no doubt, to these different nationalities.

Language of Animals.

That animals use signs, sounds, and motions by which they can understand each other, appears to be very evident, although to us they may not at all times be intelligible. A *swallow* screams at an enemy, but greets its young with a tone of affection. The *goose* hisses when angry, but cackles when happy. When *chanticleer* finds a store of food under the refuse among which he has been scratching for that purpose, he makes a peculiar noise, by which the hens, however busily engaged, will be attracted, and at once answer by running hastily towards him. *Dogs* give a bark indicating pleasure, and another of defiance, and the growl of dissatisfaction and anger. The *horse* will give the neigh of recognition; and if deprived of his mate, will often refuse to eat, and show his sorrow by repeated and subdued utterances. The *mother sheep* will continue her mournful bleating for days over her dead lamb. *Cows* will become almost frantic, and will bellow in the most distressing manner, if any accident befall their young.

Birds whose nests are attacked by snakes raise a loud and piteous cry of alarm, which collects an assemblage of other birds, who join in a furious attack on the reptile and compel it to retreat, and even at times destroy it. The *blackbird* screams when alarmed, sings when pleased, and has a peculiar note when suddenly surprised. *Magpies* can express anger, wants, pleasure, and gratitude in the most marked manner. Jesse speaks of one who, when he saw one or two favourites, would make a noise resembling a kiss. When angry he was vociferous, and scolded at the sight of anyone he disliked.

'*Foxes* utter most expressive sounds, and their young are perfectly acquainted with them. Sometimes they bark and yelp, and at others utter a melancholy cry like that of a peacock. They have a peculiar cry when suffering pain, but never utter any in the agonies of death.' 'The *chamois*, when alarmed, will advertize each other of their feelings by a kind of whistle. The one on watch will continue this as long as he can blow without taking breath. He then stops for a moment, looks round on all sides, and begins whistling afresh, which he continues from time to time,' and when he discovers anything seriously alarming, flies off.

Cats have several languages understood not only by each other, but by human beings. Mewing is their language of supplication by which they tell us plainly they require food, drink, to go out, or to come in, or something else. Purring is the language they use when petted, nursed, or stroked on the back, to express their comfort and gratitude for these little indulgences. Growling is an indication of vindictiveness, and forebodes danger to those who may unduly interfere with their rights and liberties. Hissing implies fear, and is an expression of dislike, and even of hatred. Croo, croo, is the mother cat's assurance of affection for her young.

Wild horses, when feeding, will scamper off at full speed when they hear a warning note from the horse-sentinel on watch. *Wild geese* act in a similar manner. *Elephants*, domestic *horses*, *cows*, *pigs*, and indeed all quadrupeds, have different tones by which they express their several wants and feelings. It has been asserted that in a large flock of sheep the tones of each are so distinct that the lambs readily recognize the voice of their respective mothers. When they have been separated, for a short time only, they evince the greatest joy at meeting again.

In immense forests, where animals of different sexes separate, and where their calls could not be heard, they can find each other by a scent left on trees against which they have rubbed themselves, and by which they may be traced through almost interminable forests. This is particularly the case with the *pine martin*, the *civet*, and *skunk*. This may be called a scented language.

We infer from the writings of well-known authorities, who have devoted special attention to the habits of *ants*, that

these small but industrious creatures, in communicating their fears or expressing their anger, run from one to another in a semicircle, and strike with their head or jaws the trunk or the abdomen of the ant to which they wish to give information of any subject of alarm. Their antennæ, however, appear to be their instruments of speech. Previous to the military ants going out on their expeditions, they touch each other on the trunk with their antennæ and forehead. This is a signal for marching, for as soon as they are touched they are in motion. When a hungry ant wants to be fed, it moves its antennæ in a rapid manner. The behaviour of ants in case of live prey is remarkable, and shows distinctly that these insects can convey information correctly and effectually one to another.

If a small caterpillar is placed in their way, one or two ants will at once attack it; but if they find they are not strong enough to master it, one will sometimes run away to the nest and give the alarm. Numbers of them then come rushing out to the rescue, in great anger and excitement, which subsides the moment their prey is slaughtered, of which the majority take no further notice, but leave only a few to drag the carcase homeward.

If an ants' nest is likely to be disturbed, those on its surface will with astonishing quickness convey the alarm within, when at once they commence carrying down the larvæ and pupæ to the very lowest apartments of their dwelling.

Ants are placed as sentinels at the avenues of their little cities, and being watchful, as military characters should be, give information of approaching danger. Armies of ants are often opposed to each other, and contend in real earnest, and always in such true military order, and with so much strategy, that they must be able, by certain sounds, signs, or motions, to understand one another, or otherwise they could not combat with each other in the systematic manner they do.

'*Bees* have a language among themselves whereby they know each other's wants, as in building their combs, unloading the labourers, feeding each other, etc. They also foreknow the approach of a storm, and will sound an alarm when anything injurious disturbs their habitation. Such sounds will be instantly understood and answered by the whole hives.'

An old Goose.—Thompson says: 'An old goose that had been for a fortnight hatching in a farmer's kitchen, was per-

ceived on a sudden to be taken violently ill. She soon after left the nest, and repaired to an outhouse where there was a young goose of the first year, which she brought with her into the kitchen. The young one immediately scrambled into the old one's nest, sat, hatched, and afterwards brought up the brood. The old goose, as soon as the young one had taken her place, sat down by the side of the nest, and shortly after died. As the young goose had never entered the kitchen before, there was no way of accounting for it than by supposing that the old one had some way of communicating her thoughts and anxieties, which the other was perfectly able to understand.'

Language of Dogs.—That dogs can make known their wants and wishes, one to another, seems evident from the following anecdote related to the author by the owner of the dog it refers to. It appears our informant had two large dogs, mother and son. One cold morning in winter the female dog was enjoying a nap on the hearthrug before the fire. The young one was out in the street. Suddenly, he returned and made his way to his mother, whom he disturbed by a push at her body and by the utterance of a singular noise. Not liking this interference with her comfort, she growled disapprobation. The young dog, however, gave her another push, and made another noise. The old lady dog then opened her eyes and looked full into the face of her son, who gave her another push, etc., which made the female stand on her fore-legs. She still looked intently at her disturber, whose next push and peculiar noise brought the mother on all-fours. The two dogs then put their noses together, by which they seemed to arrive at an understanding with each other, and then left the house.

Our informant was curious to know what this could mean, and so watched them as they ran up the street. Here they met with a large, strange dog, on whom they made such a savage attack that he yelled terrifically, and with his tail between his legs, ran off with all speed, as if to save his life. The two dogs then returned home. This somewhat mysterious proceeding was afterwards accounted for by what had previously transpired.

It appears that when the young dog was out alone he had come in contact with the stranger referred to, who, being

much older, larger, and stronger than himself, fell upon and gave him such a terrible shaking, that he at once ran home and conducted himself in the way we have described. It seems to us that the vanquished dog, feeling himself beaten, and perhaps mortified too, resolved upon a certain course of action to punish his antagonist, and that he practically said, as if addressing his victor, 'Never mind, old fellow. I am not a match for you, it is true, but I know what I can do; I have a mother at home. I'll go and tell her all about what has taken place between us, bring her out with me, and then with her aid I'll have my revenge on you for the mean advantage you have taken of my inferior strength and size.' May we not reasonably infer that these two dogs had talked together, and by so doing arrived at a determination to act mutually in punishing their canine offender?

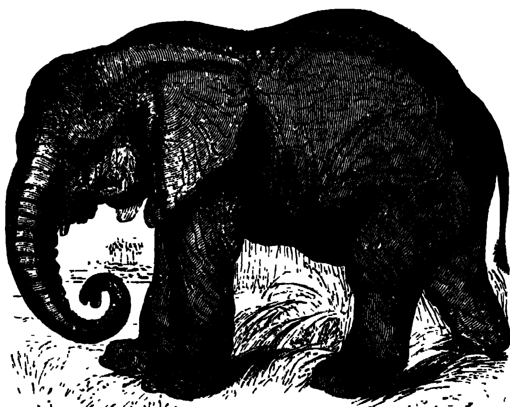
Referring to the subject of animals talking, Dr. Gibbon says 'that every variety of animated being possesses some means of intelligible communication. Each creature, by peculiar sounds or signs of correspondence, has a language understood by its own kind, and sometimes learnt by others. Emotions of caution, affection, and fear—of joy, gratitude, and grief, are disclosed by simple tones of voice, or by impressive gestures, to signalize feelings strictly comprehended and often answered. Insects and birds, fish and beasts, thus express themselves in distinct languages; signed, spoken, and sung, seen, heard, and felt.'

Can Animals Reason?—Reason, as applied to man, is the rational faculty, 'or power by which he can deduce one proposition from another, or proceed from premises to consequence.'

It may be asked, 'Do any of the lower animals, as well as man, possess, in any degree, reasoning power, or have they inventive faculties which will suggest means to help them out of difficulties, or to accomplish any object they may desire?' We think the following anecdotes will answer the question.

The Dog and Rope.—A few years since, the crew of a fishing smack lying at anchor in Brixham harbour happened one day to be on shore, except one man and a dog. The weather being fine and the water smooth, the man threw the animal overboard to have a swim round about the vessel. When tired, he wanted to be taken up, but an unexpected difficulty presented

itself. The smack, being light, was high out of the water, and her sides so perpendicular and smooth, that had the dog attempted to climb, he could not have obtained any foot-hold. The man, however, got a rope, at the end of which he made a running noose and then lowered it to the dog, who he thought would have sense enough to lay hold of it in some way or other, and so allow himself to be drawn up. To the man's surprise, he first put one of his fore-legs into the noose and then his head. When the man began to haul his companion up, the noose tightened under that part of his fore-leg near the body, and so prevented all pressure upon the animal's throat. In this way he was safely brought upon deck, without having received any injury in the ascent. We may well inquire what prompted the dog to put his leg, as well



African Elephant.

as his head, into the noose. Could he have adopted a better plan? Surely there was in this act a display of something more than instinct.

The Elephant and the Biscuit.—Some time since, we were watching a boy throwing pieces of biscuit into the mouth of Jumbo, one of the elephants at the Zoological Gardens. One piece struck his trunk, and was thrown under the hot-water pipe close by; but neither the boy nor the elephant's trunk could

reach it. The animal eyed the spot, thought a bit, and then, inflating his lungs and taking aim with his trunk, blew such a blast of air that the biscuit was blown up and alighted among the bystanders. The boy having picked it up, the elephant opened his cavernous mouth, as much as to say, 'Throw it in,' which was at once done. Here was reasoning power and an inventive faculty beyond all dispute.

A Calculating Dog.—A physician of Torquay told the following story to a large audience, after a lecture delivered by the author 'On the Marvels of Animal Life.' 'In the early part of the above gentleman's professional life, he was officially connected with a man-of-war ship, which on one occasion was moored at the mouth of a river, so that the shore was tolerably easy of access on both sides. The tide, however, in ebbing aud flowing, ran with such great rapidity, that anyone passing in a boat to and fro had to exercise great care and judgment, so that they might not be driven beyond or below the ship, or miss the proper landing-place on the shore. This the officers and men soon learnt to do.

Our informant one day took his dog with him in the boat, and the two had a ramble together through the town. On their return to the river, the master refused to allow his companion to get into the boat, and so left him to reach the ship as best he could. The dog, having no practical knowledge of the force of tides, naturally jumped into the river exactly opposite to the ship; but as the tide was running up strongly, he was carried some distance beyond the vessel. He, however, turned round and tried with all his might to return, but without avail. His owner, fearing the dog might get exhausted and so lose his life, sent two men in a boat to his assistance. He was soon on board, and all right again. Many times after this he was taken again on shore, and left to return in his own way. This he did do, but never made the mistake he had done the first time. He had 'gained a wrinkle' by his little adventure. Having ascertained, when in the water, which way the tide was running, he would come on shore and go some distance in an opposite direction, beyond the ship, or below her, as the case might be. He would then jump again into the river, and shaping his course obliquely, would almost invariably, and

with the greatest ease, reach that part of the ship he wished to do. This dog, it is evident, by his own powers of observation, and the exercise of a reasoning faculty, made correct calculations, and deduced useful inferences from certain circumstances so as to get out of, or rather to avoid, the difficulty into which, in ignorance, he had previously fallen.

The Dog and Boat Race.—We have heard, on good authority, of a dog whose master took him in a small boat for a row on a canal, and then threw him overboard to see if he could swim as fast as he could propel the boat with his oars. The dog made his best effort to keep pace with his master, but could not do so. He suddenly stopped and seemed to be considering what to do, when he at once swam at right angles to the towing-path, then ran as fast as he could, soon passed the boat, and at a good distance beyond it jumped again into the canal, made his way to the middle of it, and there waited until the boat came up to him, into which he was taken, shall we say as a reward for his ingenuity, or this manifestation of his reasoning faculty?

Fothergill affirms that animals possess all the faculties of man, though in a limited degree, imagination alone perhaps excepted. It must be admitted that many of them are endowed with properties so closely approximating to those of man, that it becomes difficult to show an essential difference.

As already shown, many animals have marvellously good memories, which are not only necessary to carry on the process of reasoning, but that where there is memory, even though it is in a dog, cat, horse, elephant, or any other animal, there is the *power* to *reason*, at least to some extent. This is implied in the fact that most animals profit by experience, especially in reference to those things from which they have suffered pain and annoyance. A dog was once made drunk with beer, given to him by his master, a coal-heaver, but could never afterwards be induced to touch it.

We have read of two horses, who were cured of a habit they had of refusing to go up hill, by two other horses being attached to the back of the carriage, put into a trot, and made to pull the refractory horses backwards. Not liking this receding style of locomotion, they ever afterwards went up every hill with speed, and were not to be restrained until they had reached its summit.



CHAPTER XXI.

USEFUL LINKS IN NATURE'S CHAIN.



AS a rule, things are valued and cared for in proportion to their beauty and utility. All animals, therefore, of whatever tribe, should be highly prized, because in some form or other they contribute to the comfort, support, and convenience of the human race.

Men who are disposed to find fault with the laws and arrangements of nature, as they refer to the numerous tribes of animals, will often ask, 'What benefits are to be derived from the swarms of insects which live in the water, burrow in the earth, and float in the air?' Such a question, we venture to say, is never seriously asked by the diligent and well-informed student of the beauties and mysteries of nature, who, the more he studies animal life, will be the more convinced that every form of it has its uses.

We will now point out the utility of those animals we have before referred to.

1. The Sea Anemone.

Although but little, comparatively, can be said of the practical uses of these and kindred inhabitants of the deep, their shapes and colours are very wonderful, and constitute a great diversity of beauty. Professor Allman, referring to one of these creatures, says: 'The brilliancy of its colours, and the great elegance of its tentacular crown, when fully expanded, render it eminently attractive; hundreds may often be seen in a single pool, and few sights will be retained with greater pleasure by the naturalist, than that presented by these little

zoophytes, as they expand their green and rosy crowns, amid the algæ, millepores, and plumy corals, co-tenants of their rock-covered vase.'

It is said that the 'sea anemone is delicate eating, and that being boiled in sea-water it acquires a firm and palatable consistence, and may then be eaten with any kind of sauce. The smell is not unlike that of a warm crab or lobster.'

2. Sponge.

The sponge, as intimated in the second chapter, is, on account of its water-absorbing and retaining qualifications, and remarkable softness, of essential service in a variety of ways, and particularly when used in our ablutions, which contribute much to the health of our bodies. Sponge is useful also to many thousands of human beings, who are employed in gathering it, and is of great importance and value, commercially, in every part of the civilized world.

3. The Frog and Toad.

Man has achieved many very wonderful things. To his superior intellect we owe many useful and important discoveries in science. He has subjugated for his own purposes the largest, fiercest, and strongest of animals; but he cannot effectually do battle with insects, which, in spite of all his efforts to keep them down, would increase and destroy almost everything before them were it not for nature's own appointed agents, who feed upon them and thus keep them in check.

One of these agents is the frog, who in a great measure is sustained by insects of various kinds. The edible frog, common in France, lives a good deal on mice, and is in turn an article of food, and much relished by our Continental neighbours.

The toad is also an insect-feeder, but varies his diet by devouring slugs, wood-lice, and many kinds of destructive creatures who prey upon the ground-produce of our gardens. If, therefore, these humble but active scavengers are helping to do what man cannot accomplish, then they should be highly prized for their great utility in the economy of nature.

4. The Adder.

Repulsive and objectionable as the adder, or viper, appears in some eyes, it has its uses. The fat of it at one time was

held in great estimation as a drug, and the apothecaries were in the habit of purchasing large numbers of them. One writer says 'that even now it is employed as a remedy for cuts, sprains, or bruises, and alleviating the painful symptoms of its own bite.'

5. BEES.

As we have, in our chapter on 'Buzzings from a Beehive,' already referred to the commercial value of bees as seen in the inexpensiveness of their maintenance, and in the value of the wax and honey they produce, we need only remark that they teach to all workers in the busy hive of human life the useful lessons of forethought, industry, perseverance, and affection; and as will be seen in the following verses, 'The Hen and the Honey-Bee,' they teach also that great results are as often, if not more frequently, obtained by a systematic and quiet way of working, as by noise, hurry, and bluster.

THE HEN AND THE HONEY BEE.

BY JOHN G. SAXE.

A lazy hen, the story goes,
 Loquacious, pert, and self-conceited,
Espied a bee upon a rose,
 And thus the busy insect greeted :

'I've marked you well for many a day,
 In garden blooms and meadow clover ;
Now here, now there, in wanton play,
 From morn till night an idle rover.

'While I discreetly bide at home,
 A faithful wife, the best of mothers,
About the fields you idly roam,
 Without the least regard for others.

'While I lay eggs, and hatch them out,
 You seek the flowers most sweet and fragrant ;
And sipping honey, stroll about
 At best a good-for-nothing vagrant.'

'Nay,' said the bee, 'you do me wrong :
 I'm useful, too, perhaps you doubt it ;
Because, though toiling all day long,
 I scorn to make a fuss about it.

'Come now with me and see my hive,
 And note how folks may work in quiet ;
To useful arts much more alive
 Than you with all your cackling riot.'

6. Spiders.

Although these animals are generally much disliked they have their uses. It is said that the web of the house-spider, mixed with mithridate, will cure long-continued tertian, quartan, and quotidian fevers. A man of the name of Eleazer Albin says 'he has cured children of agues by hanging a large spider, confined alive in a box, about their neck, reaching to the pit of the stomach, without giving any internal remedies.' The web is also used as a styptic. Dr. Gillespie made use of the web of the black spider, and found it effectual in curing ague fevers. He recommended its use to Dr. Jackson, who found it effectual in removing pain, delirium, griping, and other symptoms of fever prevailing in the hospital of the army dépôt in the West Indies.

Many of the habits of spiders teach useful lessons. Although, in mental power, man is infinitely higher than spider 'spinners and weavers,' and can produce a greater variety of specimens of mechanical genius, all more or less useful, than they can do, the question may be asked, can he accomplish a piece of mechanism as easily and as perfectly as a spider spins its web? and, in doing it, can he act independently of education, proper materials, and tools manufactured at considerable cost?

Let us look at the making of a *horse-shoe.* There is first the miner, then the smelter, casting or hammering the iron into bars, the rail to convey them, the blacksmith, the fire, the forge, the anvil, the hammers, the punch, the rasp, the nails, and the water—all these things must be brought into requisition before a simple horse-shoe can be produced.

To make a piece of furniture, there are required, first, the cutting down of the tree, then sawyers to cut the beam, the hand-saw, the rule to measure, the jack-plane, the smoothing-plane, the chisel, the hammer, the nails, the glue, and the French-polisher, before the article is ready for use.

Thus it will be seen that in manufacturing the coarsest article, or that which is exquisitely delicate, beautiful, and complex, man must be supplied with suitable tools and materials for that purpose, and he must be educated during many years before he can become a thoroughly skilful worker in any particular handicraft. It is not so, however, with spiders, which combine in their own little and curious bodies not only

materials for their webs, but the appliances and tools necessary to weave them.

'Not only do the beautiful webs hung on the foliage in the early summer morn, dotted with dew and sparkling in the sun, and those silken threads strung by the hand of winter with pearls, glittering in the light of day, show the skill of the spider, but its patience and perseverance, that may well make lazy men blush with shame.'

If Robert the Bruce, King of Scotland, did not disdain to learn a lesson from a spider, neither should we. To our readers we would say, never be discouraged under difficulties—

> But work, my friends, with all your might,
> Expand your hearts still wider;
> And when in trouble don't forget
> The king who watched the spider.

7. BEETLES.

As brief reference is made in the sixth chapter to beetles, or what we term 'black lodgers,' and to their utility as scavengers, their marvellous organization, and the assiduous attention and industry they display in their beetle duties, we need only add that the study of the habits, structure, and habitats of the 120,000 different orders of beetles existing in various parts of the world, is fraught with interest, and would aid in impressing the mind with the wonderful power, wisdom, and goodness of the Creator in adapting each kind of beetle to its own special work and place in nature.

8. FLIES.

In most cases the larvæ of flies are formed for the removal of putrid matter. Flies are useful in preventing unpleasant smells arising from decomposed animal bodies. One naturalist says, that a fly with its progeny is capable of devouring the carcase of an ox in a shorter time than a lion could accomplish the same task. Flies, in their rapid gyrations, collect on their wings floating animalculæ, and therefore prevent epidemics. We state, on the authority of a London surgeon, that during the time of cholera a scarcity in the number of flies has been very noticeable. The inference is, that when

these insects are numerous, they render essential service to man, especially in the crowded parts of large towns, where the air is vitiated and impregnated with the germs of various diseases.

9. Wasps, etc.

These insects are, on account of their marauding propensities, and those weapons they are furnished with for self-defence, not only much dreaded and hated, but, we may say, maligned. Nevertheless, they also have their uses, and profitable instruction may be derived from their life, habits, and work.

Louis Figuier says, that 'wasps, like Figaro, are better than they are reputed to be. Their societies are admirably organised, their nests are models of industry and artistic fancy. They have certain domestic virtues which deserve our esteem. . . . The female wasp does not pass her entire life in idleness as a queen, like the mother hive bee. She occupies herself in making the nest, and in taking care of the young. The males watch over the cleanliness of the habitation, and are the sanitary commissioners and undertakers to the city.'

Wasps, therefore, teach the lesson of industry, for they work hard in building their homes, and in rearing their progeny, for whom they show the greatest attachment to the end of life. Wasps feed on animal substances in a state of partial decay, as well as upon over-ripe and rotting fruit; they also feed upon small insects, both dead and alive.

The dragon-fly is also useful in helping to keep down the preponderance of insect life, for in their grub state they subsist on the larvæ of other insects smaller than themselves.

10. Gnats.

The use of gnats is not so apparent in this country as in those of more northern latitudes. We have been informed that during the short summers in Greenland, when the weather is very hot, gnats swarm in such multitudes, and sting so fearfully, that the inhabitants are compelled to cover their faces, hands, and arms with a composition of oil and tar as a protection against these little winged pests. But this is not an unmitigated evil or annoyance. These gnats draw after them

large flocks of quails, who feed upon them. The birds are then captured and killed by the natives, who cure and preserve their bodies as food during the extreme cold, snow, and frosts of winter, when it is difficult to obtain other supplies of food; so that to the Greenlanders, at least, these tormenting insects prove to be an invaluable boon. Gnats also constitute a part of the food of our insectivorous birds.

11. Birds.

As we have in our ninth and thirteenth chapters referred to many kinds of birds as useful scavengers, we will now add the testimony of a north country farmer.

'I was standing,' he said to us one day, 'talking to a friend by the gate of a field covered with the young blades of a barley crop just peeping above the surface of the earth. Several rooks, about half-way across the field, were industriously looking for their morning meal, when my friend said to me, "Those black robbers are at their old work again, grubbing up the blades, and devouring the grain; fire at them, and then let us go and see what mischief they have done."

'I fired,' said the farmer, 'and killed two of the rooks. We went immediately to where they were lying, when to my astonishment I saw, coming out of the mouths of both birds, living wire-worms, which but a few minutes before they had picked up and swallowed. I then opened the body of one of them, when to my friend's amazement we did not find in the crop a single grain of barley, or seeds of any sort whatever; nothing but worms and larvæ, all of which are destructive enemies of ground produce, especially of the roots of corn and grass. The rook is one of the farmer's greatest friends.'

12. Fowls and Moles.

For the commercial value and domestic uses of fowls, and the lessons that may be learned from their habits and affection, the reader is referred to the twelfth chapter.

The benefits derived by agriculturists from the underground operations of the mole, as well as the beauty and value of its skin and fur, are fully explained in the thirteenth chapter on 'Miners of the Soil.'

13. RATS.

Rats seem to have incurred a very large share of antipathy; so much so, that man's inventive genius has been tested over and over again, to produce the most effectual mechanical means of destroying them, and keeping them in check. Amongst animals rats can claim but few friends. Cats, dogs, weasels, and owls are their sworn enemies, and they have been denounced, not only as a bane to man, but as being 'good for nothing.'

We may, however, ask with Drummond, 'Who has proved that a rat is "good for nothing?" It was created by a Power infinite in wisdom, and therefore must be good for something . . . Is it not a useful scavenger? Does it not devour meats that would putrify and taint the atmosphere? Does it not supply an occasional meal to birds and beasts of prey? Nay, has it not sometimes sustained the life of the famishing mariner, and been purchased for its weight of silver or gold during the straitness of a siege?'

During the late siege of Paris, rats were eaten by many of the inhabitants, who might otherwise have suffered considerably for want of the sustenance derived from animal food. In the *Quarterly Review*, April, 1835, it is stated that 'the Chinese bring to market rats which are drawn quite clean, and like pigs in our country hung up by the hind legs; and they look very nice.'

The skins of rats have been utilised. We read in 'Our Dumb Neighbours,' that 'some time since a man of Cornwall made himself a complete dress, from top to toe, consisting of the skins of 670 rats; the tippet, or boa, was composed of the skins of 600 of their tails.'

'A lady of Glasgow,' says the same authority, 'has just now a pair of shoes, of exquisite workmanship, the upper parts being made of the skins of rats. The leather is exceedingly smooth, and as soft as the finest kid, and appears stout and firm. It took six skins to make the pair of shoes, as the back of the skin is the only part stout enough for use.'

14. HEDGEHOGS.

We have been informed by kitchen gardeners that a hedgehog is a very useful agent in keeping down destructive insects,

such as worms, slugs, and snails, which often commit terrible ravages on garden produce. Hedgehogs are also useful in clearing kitchens and cellars of blackbeetles, which, although not altogether useless, are sometimes destructive of valuable articles.

15. THE BADGER.

In our chapter headed 'Nocturnal Ramblers,' reference is made to the industry of badgers, in providing homes for their future young, and the tender parental anxiety they show in supplying their wants and in protecting them from danger. Not only is their affection shown towards their offspring, but to each other in maturer life, when they are living alone in their dark burrows and underground homes, in which their mutual attachment grows into a bond of union that cannot be severed by any untoward circumstance, or by death, without producing in the survivor the most poignant grief. This is seen in the anecdote we have related in the fifteenth chapter, of the badger that was killed by a dog. Many an unfeathered biped might learn many useful lessons from the industry and affection of these animals.

It is said that when the ham of the badger is salted and properly cured it is as good as the ham of the pig.

Badgers have something to do with the fine arts, especially in portrait and landscape painting:

> The artist takes his pencil,
> Made up of badger's hair,
> To give effects, by lights and shades,
> To pictures rich and rare.

This being the case, we think the badger is worthy, at least, of 'honourable mention.'

Of the skin of this animal are made collars for dogs, trappings for horses, and coarse furs.

16. THE FOX.

While it is true that natural historians may have much difficulty in discovering the good qualities of this animal, he nevertheless possesses some characteristics so far worthy of notice as to recommend him to our humane consideration and proper treatment. The fox may be highly prized by those

who find pleasure in hunting him, but this does not place the animal under the least obligation to such men, because the reason they value and protect him is a purely selfish one.

If the fox is cunning, and given to pilfering hen-roosts, he is also so intelligent that many of his acts indicate the possession of a strong reasoning faculty.

An old writer says: 'As among men those who lead a domestic life are more civilized than perpetual wanderers, so among animals the taking possession of a home supposes a superior degree of intellect. The choice of situation, the art of rendering it a convenient habitation, and concealing the entrance to it, likewise indicate superior skill and industry. Endowed with both these, the fox turns them to his advantage.'

Referring to the use of the body of the fox, the same writer says: 'The flesh of the fox is not so bad as that of the wolf; dogs, and even men, eat it in autumn, especially if he has been fattened with grapes; and in winter good furs are made of his skin . . . . The black is the most valuable, and yields to none but the sable.'

17. The Goat.

This animal is very useful in this and other countries, and especially in Wales, for domestic purposes. The milk of it is very nutritious, which the Welsh people convert into cheese, and they also salt the flesh as bacon for winter use. The flesh of the kid is excellent eating. Its skin is much used for gloves, and is very remarkable for taking dye. Many years since, it was ornamented with gold, silver, and brilliant colours, and used as window curtains in the rooms of affluent people.

The skins of full-grown goats are extensively used in bookbinding. The wigs worn by our judges and other members of the bar are made of the hair of these animals, out of their horns are made handles for knives, and their suet is used in the manufacture of candles. Being hardy and inexpensive, goats are a treasure of great utility to the inhabitants of all those countries in which they are found. Their parental affection is very strong.

'No animal,' says Priscilla Wakefield, 'more strikingly demonstrates the harmony that prevails between the instincts and inclinations of the inferior classes of creation and the

places destined for their abode, than the goat. Nature has formed it to inhabit wild and uncultivated regions, where nothing grows but a few alpine mosses and lichens, a little wild thyme, or scattered blades of mountain grass; but these are the very food the goat delights to regale upon.'

18. CATS.

As these animals are so domesticated and numerous, their uses are too well known to require any further description beyond a mere recapitulation of some points referred to in our seventeenth chapter. The curiosities and peculiarities of their structure will afford much interest and pleasure to the student of physiology, while to the psychologist the intelligence and memories of these animals constitute subjects of not less importance. The old lesson of affection for their progeny, attachment to home, and to those who treat them well, teaches us that we are morally bound to protect and to be humane to them, and, as far as we can, to mitigate their sufferings.

19. DOGS.

The special uses of the different kinds of dogs mentioned in the eighteenth chapter having been referred to, we cannot do better than sum up the character, qualities, and uses of these faithful animals, in the eloquent language of Mr. Drummond, author of 'The Rights of Animals,' who says:

'But what can be said of this inestimable creature that has not been said already? The language of panegyric would be exhausted before his excellent virtues could be described as they merit. His fidelity, his courage, his vigilance, his gratitude, his generosity, each the theme of merited praise, win our love and respect. The favourite of children, the chosen companion of women, the watch and the guardian of our homes, the guide of the blind, the participator of man's excursions by land and sea, the defender of the shepherd's fold, the detector of the thief and robber, the fleet courser that transports the Esquimaux, in his sledge, over the arctic waste of snow. . . . He ventures life and limb in our service; he explores the mountain waste, and faces the wintry tempest in search of the traveller that has been overwhelmed by the

snow-drift; he springs into the foamy torrent to rescue its victim from destruction; he breasts the boisterous surges of the ocean, to convey a rope to the shipwrecked mariners, by which he achieves their deliverance; he recognises his beloved master after *many* years' absence, and expires at his feet in a paroxysm of joy at his return.' Well may the writer ask: 'If such a benefactor to man has not a special claim to his protection and kindness, nay! affectionate regard, what has?'

Having pointed out the special uses of the animals referred to in this volume, we shall enumerate a few others who are all, more or less, useful in the economy of nature, and of service to man.

Drummond remarks: '*Animals* facilitate our labours in the field and in the city—bear our burdens—and transport us from place to place. The *elephant* gives his strength; the *horse* his speed; the *ass* his patience; the *camel* his invincible endurance of thirst and labour in regions where no water refreshes the ground. The *sheep* gives its body; and the *cow* supplies delicious nutriment; the *dog* performs the duty of a sentinel over our persons and property.'

From the bodies of various *animals* we derive the materials for the harness of our *horses*.

The hair we use in plastering the ceilings and walls of our rooms, the glue so useful in mechanical purposes, and the combs so necessary in our toilet, we derive from the *cow* and the *ox*, or animals of the same family.

The savage who tattoos himself makes an incision in his flesh with the bone of a *pigeon's* wing, and forms an adze of the shell of the large *kemo cockle*.

The bone of the *whale* is utilized in the manufacture of ladies' corsets; and the oil of the same animal is used for many purposes.

The fat of *animals* contributes very materially to artificial light, still obtained from the old-fashioned tallow, and other candles, tons of which are sent out yearly from the different factories of this and other countries.

Head-dresses for men and women are adorned with the feathers of *birds*, and human bodies are wrapped in the furs of *animals* to protect them from the severity of the weather.

A property is derived from *ants* which is an important part of chloroform, and which, when properly administered,

wonderfully lessens animal suffering during the process of surgical operations.

A certain kind of *beetle* makes an opening in the bark of a plant like fennel, from which oozes gum-ammoniac. And our beautiful silk is derived from a simple *insect.*

The ink, by which philosophers, statesmen, theologians, students, clerks, editors, barristers, judges, merchants, and others transfer their thoughts and discoveries, their readings of the law, successes in speculations and other things, to parchment, or to paper, is derived mainly from gall-nuts produced by *gall-flies.*

Can we look into a shop of any kind, at the robes of royalty, the ermine of the judge, or take a journey on business, a trip for pleasure, or even a meal, without seeing in all these things the unnumbered benefits we daily derive from the lower animals?

To say nothing of what we owe to numerous tribes of animals, not mentioned, for comfort, pleasure, convenience, and support, the following calculation will show how much we are indebted, commercially and in many other ways, to one kind of animal only. We refer to the *sheep.*

20. Sheep.

It has been stated, we believe on good authority, that just before the late war between France and Germany there were 140 million head of *sheep* in the different continental countries of Europe. Supposing each sheep to be worth only £2, then the whole of them would be of the value of 280 millions of pounds sterling. About 7,168 sovereigns weigh one hundredweight, or 112 lbs. If we suppose one man to carry one cwt. of sovereigns, it would require 39,062 men to carry all the gold these sheep were worth. These men, each with a cwt. of sovereigns on his back, and placed nearly three yards apart, would make a golden belt right round London 60 miles in extent. Reckoning fourteen sovereigns, placed side by side, to extend one foot in length, then the 280 millions would make a row 3,787 miles long. To pile them all one on the other, at the rate of fifteen sovereigns to the inch, the whole would make nearly six golden columns, and each column would be fifty miles high.

These calculations refer, however, to the selling value

only. The vast benefits these animals confer upon man are incalculable. Let us look at the multitudes of human beings who are, in some way or other, constantly employed either in tending upon them, shearing them, combing their wool, dyeing, and weaving it into cloth, blankets, carpets, curtains, flannel, and otherwise preparing it for use. And then let us not forget the thousands of men, women, and children who are employed in making the cloth into garments, caps, cushions, and other useful articles. The entrails of these animals supply us with strings for our violins, harps, and other musical instruments. Their fat is extensively used in candle-making; and out of their skins is made the parchment commonly used for wills, leases, agreements, and important documents of various kinds, particularly those it may be necessary to keep a long time; and the last, but not the least, benefit derived from them is their flesh, so universally esteemed as an article of food.

21. Ass.

The Ass is a great boon to those who own him, because he costs so little to keep, and possesses such wonderful powers of endurance in labour. These animals are the *bread-winners* of many thousands of poor people; and the *milk* of the female is invaluable to *invalids*. Formerly a man's riches were estimated by the number of asses he possessed. In a variety of ways they have been so useful, and connected with such important events, that they ought to be highly prized, and kindly treated. They have not always been such despised animals as some of them, unfortunately, are now. It must not be forgotten that—

In days of yore, when yet the world was young,
Sages of asses spoke, and poets sung;
In God's own Book we find their humble name,
And some enrolled upon the scroll of fame.

22. Cows.

That the *domestic cow* and its kind are great treasures of usefulness, is evident from the luxuries they yield us in the shape of *milk*, *cream*, *butter*, and *cheese*. When dead, every part of their bodies—*flesh*, *skin*, *hair*, *horns*, *hoofs*, *bones*, etc.—can be utilized for our benefit.

23. Horses.

In every country where the horse is domesticated, he is of great service to man. It is questionable if civilization could be perpetuated without him, unless some animal, equally good, could be found as a substitute. Savages only can live without, or with but little, labour; man, in civilized life, must build, plough, travel, speculate in merchandise, in all of which the labour of the horse is required.

A few years since, the horses in Great Britain numbered about 2,255,000. Giving the low average price of them at £20 each, their commercial value would be £45,100,000. To realize the magnitude of this amount, we may state that if a person were to count sixty sovereigns every minute for eight hours a day, it would take nearly 1,576 days, or a little over four years (including every day in the week), to count all the sovereigns the horses of Great Britain were worth some time ago. The value of these animals is, in every way, so great that it can hardly be fully realized.

To a large extent, horses are intimately connected, not only with business and pleasure, but with numbers of the customs and ceremonies observed in most civilized countries.

Who ever knew the coronation of an English king or queen—a *levée*, or drawing-room, held by royalty—the opening of a session of Parliament—the installation of a lord mayor into office—a funeral procession, or a wedding of the noble and rich, or of the well-to-do—without the attendance of horses, now in gay, and then in sombre trappings, varying only according to the circumstances of the case? On all these occasions, horses, though dumb, may be seen taking their part, as silent spectators of what is going on.

When the earth is devastated by war, horses, unfortunately, are there, taking their share of cuts, wounds, and murderous cannon-shots, and then heaving out their last of life in pain and agony.

Where, in any city, are there men of commerce whose hearts throb with a burning desire to accumulate the gold which is to make them rich, who have not their horses to aid them in this battle for wealth?

In fashionable resorts—in the towns of merchant princes—in the quiet fields—in busy streets—on the quays of our

seaports—on our railways—down in our coal mines—by our rivers, canals, and factories—indeed everywhere, and at all times, the tramp of our toiling servants—horses and other animals—may be distinctly heard.

How, without our horses, could the earth's produce and our manufactured articles of various kinds be conveyed from place to place, our land cultivated, our churches, mansions, and other buildings erected, or our railways constructed? Or how could we, without them, travel, as many thousands do, from one part to another of our large towns and cities, it may be on business, or for the enjoyment of a drive through our parks or into the country?

Were we to be deprived of our carriage, omnibus, cab, dray and other horses, or of our donkeys and dogs, it would be like tolling the death-knell of business and of pleasure—the hum of commerce would be hushed, and desolation would spread its pall over and around our now busy and fertile country.

For all the purposes we have mentioned, the horse is rendered the fittest and most useful companion of man, because of his vast strength, swiftness of foot, his docile disposition, and great intelligence.

Not only is the horse during his lifetime of great benefit to us, but he is so, to some extent, after his death. His flesh is eaten by some continental neighbours, and his skin, hair, and bones are useful in various ways.





CHAPTER XXII.

CLIENTS WORTH PLEADING FOR.

S the uses of many of our animals have been pointed out in the last chapter, we have selected the above title for the present one as being appropriate, and affording ample scope for reference to their chartered rights and claims upon us for protection and humane treatment, as well as to the advantages to be derived therefrom.

If we take a creditor and debtor view of the pleasures and benefits which man and animals derive from each other, we must see that man has by far the largest share. As regards our working animals, they have been subjugated by man's superior force and intelligence, and brought into a condition of entire dependence upon his will, and are in all respects at his mercy. Man has the benefit of their labour, strength, fleetness, and intelligence, while in many ways they subserve his purposes.

But what do these animals receive, even under the most favourable circumstances, in return for their usefulness to us? Nothing more than a little food, shelter, and attention. As the late Rev. J. B. Owen once remarked: 'They are cheap servants, requiring neither money nor clothes; they find their own clothes, which we don't mind wearing second-hand when they have done with them. Their lives are spent in our service, their deaths bequeath to us their scanty chattels, and base and thievish is the neglect which starves or stints them.'

In reference to the utility of animals, as referred to in the last chapter, it may be said that our statements are not correct

as applied to all animals, because there are now existing numberless tribes of them which man has no control over, or ever can utilize in any way whatever. They come into life in their native wilds and woods in which they roam at pleasure, live a savage life, and die either of old age, or by accident, or are devoured by others stronger than themselves. 'Surely,' it may be added, 'such animals are of little or no use to man.'

But why should we be so selfish as to suppose that the only object of their creation is to render service to man? That they were intended to enjoy life, no one can deny—and that for God's pleasure they were and are created is quite and indisputably certain.

We may easily imagine that if any portion of animated creation can enjoy pure unalloyed happiness it will be those that know nothing of man's cruelty, whose habitats are untrodden by his feet, in whose wild and free homes the voice of his anger is never heard, whose habits and instincts are never interfered with, but who live just as they are controlled by nature's laws.

The noble lion roams with pride and pleasure through the jungles of India. The huge elephant enjoys his life, and feels at ease and at home with his own kind in the vast forests of Africa. The whale in the deep sea; the eagle that soars towards the sun; birds that sing; bees that hum; insects that float in the warm sunshine of spring and summer; butterflies that live their short day amid flowers and beauty; the underground workers—nature's own miners, and all things that have life, are capable, uninterruptedly and unaided by man, of enjoying the pleasure of their own existence, and in it glorifying God's beneficence and unerring wisdom.

Who can deny that from the depth of the wide ocean, from regions unexplored, and lands unknown to civilised men; from the remotest verge of the green earth, and even from the snow-clad mountains of the distant north, there arise animal voices ever chanting the praise and goodness of our common Creator? And is not this one universal chorus from the lowlier members of the Animal Kingdom as much heard by, and as acceptable to, God as are the divinest songs of man?

Can the greatest intellect of man define a limit for God's goodness, His love, care, and attention to the wants of His creatures, or even the pleasure He takes in the works of His

own hands? 'The Lord is good to all, and His tender mercies are over all His works,' and 'All Thy works shall praise thee, O Lord,' seem fully to endorse the statements we have made. If such then are the care and goodness of God towards these lower forms of life, we are morally bound by such an example, and as responsible agents, as well as by the advantages we derive from animals, to treat them humanely and considerately.

If, in costly works of art, the beautiful as well as great proofs of man's genius and skill constitute a reason why we should admire and value them, then the wonderful structure of animals of all kinds, the size and strength of some, the gay plumage, the gauzy wings, and varied colours of others should in a much more eminent degree excite our admiration and lead us fully to estimate their worth.

If the effigy of a man or an animal, cut out of stone, granite, or marble, calls forth eulogiums of praise on the sculptor who formed it, although it may be defective in some minor points, how much more so should animals of every kind who are endowed, at least, with some degree of intelligence, and the power of voluntary motions which are lacking in the finest specimens of man's genius and handicraft? Paint canvas as you will, carve marble into an almost perfect resemblance of life, they remain canvas and marble still; life is wanting.

The snail that crawls over the gigantic statues of philosophers, statesmen, philanthropists, and renowned warriors; and the common fly that runs over the paintings of old and modern masters, which are so like nature and life that you may almost fancy you are looking upon realities, and that you can hear the tones of the human voice emanating from them; we say that the snail and fly are superior to them because they have life, active moving life, and they beam, as no work of art can beam, with proofs of *divine* intelligence, order, design, wisdom, and goodness. The smallest insect is far superior to the noblest work of man.

What in art can compare to the gaudy colours and transparent wings of a simple butterfly; or the beautiful plumage of many of our birds? What can the genius of man produce which in its structural arrangement can vie with the organism of the wasp, the bee, housefly, or any other insect? Has man by the aid of science and the law of mechanics ever

invented any kind of machinery which in its structure is half so wonderful, easy, perfect and beautiful as the locomotive appliances or structure of the common snake, whose sinuous motions are so interesting and marvellous?

It is true that man's ingenuity, by the help of coal and steam, has made the rapidity of transit so great that a journey of a hundred miles nowadays is regarded as a mere trifle; and yet a tiny gnat can keep pace with the swiftest railway train.

The aëronaut may boast of his courage in ascending from the earth to the height of two or even three miles. But in this he does little or no more than the lark, which mounts so high that it is lost to human vision, or appears as a speck against some silver-edged cloud floating, it may be, higher than balloonists care to venture. The eagle, that bird of the sun, may look with contempt upon such airy aspirants, who are left far behind and below him, while he ascends to those higher regions of the sun's light man does not attempt to reach.

What fabric was ever woven by human hands, which for fineness of thread and mathematical precision could excel, or equal, the spider's web?

A man cannot lift more horizontally than one-third his own weight. A mole cricket with its two hands can move 375 times its own weight; and, it is said, a flea can jump 200 times higher than its own stature. A man to do this would have to jump 1,000 feet high, or nearly three times higher than St. Paul's Cathedral in London.

As what we have referred to, and many more equally wonderful things we have not mentioned, are performed by animals unaided by those mechanical contrivances invented by man, the latter has not, after all, much to boast about, and certainly has no right to be cruel to, or in any way unjustly to tyrannize over, the humblest members of the animal kingdom.

Another very powerful reason why animals should be kindly treated is, that as well as ourselves they are the 'creatures of God,' created and supported by the same Almighty power. God cares for them, beneficently provides them food and habitation, furnishes them with the means to protect themselves against each other, to seek safety by fleetness, or by flight, and with the capacity to enjoy their short

span of life. Is it not then as little as we can do to show them kindness, to treat them humanely, and 'to be merciful even as our Father in heaven is merciful?'

Animals have a claim on humane treatment because they cannot, like human beings, plead for themselves or seek legal redress for the wrongs and sufferings which they often have to endure until some humane eye is directed to their condition, or the officer of justice finds out the delinquent who may have been the cause of their sufferings.

Many men seem to receive an impulse to their cruel propensities from a knowledge of the comparative helplessness of animals to retaliate upon those who illuse them.

No man likes to be branded 'A coward!' but he who is cruel to an animal well deserves the stigma. A man of great physical power and of noble mind and generous impulses, would scorn to take advantage of a poor, weak, and helpless imbecile, simply because such an act would be degrading both to his character and manhood. It would be well for dumb animals if all men would act on this principle towards them. The laws of God, nature, reason, and humanity condemn every motive, cause, and act which rob animals of their rights, or deprive them of the sunshine of life.

Cruelty, in whatever form inflicted, is bad policy, and never was known to pay. If a horse or donkey be ill-fed and overworked, they are not only less able, but less willing, to work, which is a loss to their masters instead of a gain. At the same time, it is a fatal error to suppose that because a horse is well fed and groomed, he may be worked any length of time without any serious injury to himself.

He may drag his load, or run over a great number of miles in one day, without *apparent* injury being done to him; but experience teaches that overworking him in any way very often prematurely and rapidly weakens his system, and so undermines his constitution that he becomes of but little value when he should be in full strength and of the greatest service to his master.

Cruelty depreciates the value of animals in various ways, whether it be by overdriving, overloading, unsuitable gear, inattention to their ailments, exposure to inclement weather without proper shelter, especially during the night, or by starving and stinting them of the food they require.

Owen refers to a case in which, some time ago, 'a truck of fat bullocks, left standing exposed through a cold and wet winter Tuesday night, at Redruth, in Cornwall, got no food till their arrival in Bristol on the following Thursday morning, when they were found to be stiff, cold, running at the eyes, and greatly depreciated in value.'

Cruelty to animals is not only bad policy, but, we repeat, it is mean, cowardly, abominable, wicked, and an insult to their Maker, who has given them in many cases great strength, beauty, sagacity, and intelligence, and, to all, marvellous instincts.

Cruelty admits of no defence. The tyrant over animals cannot accuse them of plotting against him or of maligning his character. 'Animals are such agreeable friends; they ask no questions, they pass no criticisms.' Then why should they be illused and subjected to needless pain?

But independent of the sufferings of the animals themselves, we must look at the baneful effects produced, especially on young people, by an indulgence in acts of cruelty, be it only for wanton sport, crushing, by a series of prolonged tortures, the life out of the smallest and most insignificant insect, a powerless bird, or a helpless quadruped.

Cruelty has a demoralizing and degrading tendency. It hardens the heart and renders it, by slow but sure degrees, less and less susceptible of sympathy. It blights love and affection, destroys all the better feelings of human nature, and often transforms the tender child into a savage, and sometimes into a murderer. The history of a certain Roman Emperor proves that this is very likely to be the case. What says the poet?

> 'The cruel boy unchecked a fiend may rise;
> Nero himself began by killing flies.'

But the life of that monster of cruelty was stained with the blood of murdered slaves, who were put to death in his presence that he might gloat over their writhings, the throes and convulsions of expiring nature.

The evils of cruelty are not confined to those who commit it, but, like moral plague-spots, they spread themselves through every ramification of society, affecting men and women of all classes and ages, and especially the young. Children are

creatures of imitation, and they love to copy what they see in others. The poet truly says, in referring to this point:

> 'In early life the mind, impressible and soft,
> With ease imbibes and copies what she hears and sees:
> And through life's labyrinth holds fast the clue
> That education gives her—false or true.'

Although many acts of cruelty are not intentionally committed, but often the result of carelessness and thoughtlessness, very much cruelty arises from ignorance of the wonderful structure and uses of animals, as well as of man's duty towards them. Whatever branches of knowledge may be comprised in our systems of private and public education, if they do not include the teachings of humanity to animals they are defective, and lack one of the four cardinal points which constitute true moral philosophy.

Nothing is of greater importance to the future happiness of a child, or to the credit of society and the welfare of the lower animals, than a proper education in the laws of mercy and kindness to dumb beasts. A cruel man is a torment to himself, a disgrace to civilization, a terror and a source of misery to the animals under his control.

Cruelty has often been followed by severe retribution. Those who wantonly torture dumb animals should 'call to mind One who in His lowly majesty rode into Jerusalem sitting upon an ass; and remember there is a day coming when His almighty power, that opened the mouth of an ass "to rebuke the madness of the prophet," will awake the memory of His creatures' wrongs in deep condemnation on their oppressors.'

Many persons now living can well remember when there was no law to punish those who were guilty of acts of cruelty to animals. But, happily, a brighter day has dawned. Although here and there men were found who had the courage to protest against cruelty, and to defend animals against the ill-usage they often, even publicly, received at the hands of human savages, yet it was not until about the years 1809 and 1810 that the star of humanity arose conspicuously in the moral firmament, to shed its mild rays and benign influences over the animal kingdom.

Prompted by sympathy, and by noble, generous hearts, Lord Erskine introduced into the House of Lords a motion

for the protection of animals against cruel treatment. But although defeated in his object at the time, he and those who aided him were not to be shaken from their noble purpose, and so similar efforts were subsequently made.

In the years 1820, 1821, and 1822, Mr. Richard Martin introduced bills against cruelty to animals into the House of Commons. In the latter year, his efforts were successful, but the first statute was very insufficient, and amendments followed at different dates. It was, no doubt, mainly through Mr. Martin's and the Rev. Mr. Broome's untiring energy that, in 1824, the Royal Society for the Prevention of Cruelty to Animals was formed, which from that date greatly assisted in obtaining improved legislation, and which ever since that time has continued to increase in the number of its members, its influence, and usefulness.

Although this society is often compelled to assume and to exercise a punitive character and power over those who are cruel to the lower forms of animal life, it nevertheless tries to prevent inhumanity by the employment of milder agencies, such as the giving of sermons on the subject of kindness to animals, the diffusion of humane literature, and the delivery of lectures on the structure, habits, and uses of animals as well as on man's duty towards them; so that its means and operations are of an educational character.

Half a century since, the defenders of animals were derided as mawkish sentimentalists, and their work and objects not only unpopular, but laughed to scorn by their opposers; now the objects and principles of the society are sufficiently understood and appreciated as to constitute themes for the pulpit, the press, and the platform. Even in private seminaries and public schools children, at the instigation of the society, every year write essays on the 'kind treatment of animals.' Hundreds of these are periodically sent to the office to be read and adjudicated upon by gentlemen appointed for that purpose, who, according to the merit of such papers, decide on the compositions most deserving of the society's premiums. Not fewer than 17,000 essays are written yearly by the children referred to, which we think augurs well both for the juvenile authors and the animals whose cause they plead.

We may add, that by the action and influence of the R.S.P.C.A., all our birds now have legal protection during the

close season. We have reason to hope that ere long all our wild animals will be placed within the statute forbidding cruelty.

The 'Band of Mercy' movement, which was originated by the late Mrs. Smithies, is an important auxiliary in the cause of humanity, and no doubt will ultimately become a wonderful power of good in favour of animals. Scarcely less effectual, in the suppression of cruelty, are the temperance societies and 'Bands of Hope.' If we teach men to be sober we shall lessen cruelty, as much of it is committed when men's brains are partially muddled and excited by strong drinks.

May we not see in the organizations referred to better times for animals, as well as gleams of sunshine, sure precursors of the bright side of animal life? And may we not hopefully anticipate that in the future animals will have their rights, and be regarded, not as mere machines to work and suffer for man's pleasure only, but as members of the same creaturehood as ourselves, sharing our sympathy and our care, as well as our best efforts to make their lives as happy as possible?

If, as some people believe, the lives of animals perish with their breath, and if there is no hereafter state of consciousness for them, then the brevity of their existence should be a sufficient reason for the exercise of kindness towards them. Neither the cost at which a man may purchase animals, nor the expensiveness of their support, constitutes a valid reason or right why he should act the tyrant over them. As a steward to whose care they are committed, it is his positive duty to extend to them, in every way, that kind of treatment demanded by those chartered rights given to them by God.

How Kindness to Animals may be shewn, and its Advantages.

In speaking of kind treatment to animals, it must be understood, that while every form of life may put in its claim, we refer particularly to the higher quadrupeds, especially to those who are more immediately under man's control, all of whom can appreciate kindness, to which they are very susceptible.

Horses and dogs have almost as keen a sense of kind and unkind treatment as human beings have.

Dogs seem to know by the eyes of their masters whether

they intend to caress or to punish them, and will act accordingly. Horses tremble when they hear the voice of the man who illuses them, and often become so bewildered that they cannot understand what is required of them, and consequently are subjected to much needless suffering. Thousands of instances could be adduced to show that these animals appreciate a kind tone of the voice, if not a gentle expression of the human eye. The voice of man is far more effectual in properly controlling horses than is either the whip, the spur, or the rein. 'Why don't you use your whip on your horses?' we once asked a squire's waggoner. 'Because they don't require it,' was his reply; 'they understand what I say, and always obey me.' Humane treatment produces in horses neither fear, bewilderment, nor obstinacy, but effects of an opposite character; it renders them happy, confident, and cheerfully willing to do their work, which must of necessity be more beneficial to their owners than neglect, harshness, and cruelty could be.

In referring to the humane treatment many horses now receive from man, and to the benefits arising from the disuse of the tight and gag bearing reins, those vile instruments of torture to the noblest of our animals, they may well be supposed to say:

'Tis seldom we now get a flogging,
  Because when we hear the 'Gee! Ho!'
Our shoulders we put to the collar,
  And onward we cheerfully go.

The horse, by his intelligence, docility, and great usefulness to man, pleads eloquently, and very forcibly appeals to him in the following lines:

Although thou art my master,
  And I thy toiling slave,
I ask no money wages,
  Nor high eulogiums crave.

Then give me food and shelter,
  Kind words, not savage blows;
For mercy is the portion
  Of him who mercy shows.

To prolong the lives, to promote the happiness, and to increase the usefulness of animals, several things are requisite.

Those who perform the duties of labour, whether in business or pleasure, particularly require :

1. *Proper Rest.*—They are included in the sabbatical law, 'that they may rest as well as thou.' If a man has to labour physically every day in the week, month after month, without his seventh-day rest, he becomes in time weakened, emaciated, and in appearance prematurely old. If the mathematician, poring over his problems, keeps his mental powers at full tension day after day, and does not allow himself proper time for mental rest and quiet, his mind soon weakens, his ideas become confused, absurd, and even extravagant, and often at last he becomes an imbecile or a dangerous madman.

'I always keep a rest horse,' said a gentleman to us one day, 'because by so doing my horses (and I keep five) are not only more willing, but more able to work ; they do it with pleasure and in less time than they could if they were not well cared for. Each horse rests every fifth day. In consequence of this they don't get exhausted, their health and spirits are kept up, and they very seldom require the doctor ; so you see keeping a rest-horse is a benefit to me in that way ; and not only so, but I have in many cases, after working and giving proper food and rest to them for four or five years, sold them for more money than I gave for them in the first place.'

As in the cases of continuous physical and mental labour just referred to the results are disastrous, so are they to those animals who are denied their proper rest ; they soon become so jaded, spiritless, and weak, as to be of little use, and so the owner becomes the loser.

The command that man and beast should rest on the Sabbath was wisely and benevolently given, in order that both mind and body, wearied and wasted by the labours of the preceding six days, should be invigorated, strengthened, and prepared for further exertions. Any attempt to contravene this divine command usually results in evil consequences of some kind or other. Proper rest is the true sunshine of an animal's life.

2. *Proper Food, etc.*—Good breeding and good training are admitted essentials in the treatment of working animals. But cleanliness, proper food, and a sufficient quantity of it judiciously given, are indispensably necessary to their health

and comfort. Although humanity says, 'Feed a horse well,' it also says, 'Do not overwork him, or in any way overtax his powers of endurance.'

The donkeys of Spain do not present the abject, emaciated, spiritless appearance which their assinine relatives do here; but they are well developed, muscular, full of strength and activity, and withal as obedient and docile as children. When sold they have often fetched fifty and even one hundred guineas apiece, while many of our donkeys may be purchased for the same or a less number of shillings.

'There is no doubt that the reason why Spanish donkeys are superior to our own, is because they are more humanely treated, and better fed, than ours are. In many cases our donkeys are neglected, half-starved, and much over-worked, which very considerably depreciates their value.

Special efforts have, however, of late been made, in various ways, to improve their condition. No one can see the donkeys of the costermongers of Golden Lane, and of other parts of London, without observing a marked difference in their appearance for the better. These men now understand the real value of their four-legged bread-winners, and have learnt the lesson that good feeding, grooming, and care of their animals pay their owners much better than starvation, or any other kind of ill-usage.

In illustration of this, we may mention that some years since we attended a public meeting held in Islington, under the auspices of the Right Hon. the Baroness Burdett-Coutts, on which occasion prizes were given to the most humane cab-drivers, drovers, costermongers, carters, and others having the care of animals. We were standing close by a number of costermongers, just as one of the speakers made some remarks on the benefits derived from grooming donkeys, when one of the 'costers' referred to, turning to the man sitting next to him, said: 'I say, Ned, what that there gen'le-man says is true, an' I knows it. Why, grooming of 'em does 'em as much good as a meal o' wittles!'

This improvement in the condition of our donkeys is in a great measure owing to prizes having been given at shows of them in the Crystal Palace and other places, for the best and most humanely-treated specimens of our assinine tribes.

On these occasions we have seen them gaily decorated with

ribbons of all colours, and almost richly caparisoned; and we have heard them admired by thousands of astonished spectators, by whom the owners of these animals have been commended for their humane treatment of them. In some cases the donkeys were sold for almost fabulous prices; some fetched £10, others £20, and upwards.

Do we not see in the above statements unmistakable signs, that as education in the principles of humanity is extended, the rights and claims of God's humbler creatures will be admitted and granted to them; that the time may come when cruelty will be universally condemned, and every inhumane man held in contempt, and considered to be unworthy of being invested either with civil or social authority, and as being a disgrace to civilized society?

The following story is a good illustration of the benefits arising from kindness to animals. We once knew a horse, not more than four years old, who, in consequence of ill-treatment, was nearly used up, and apparently worthless. His cruel owner, however, sold him for six or seven pounds to a neighbour, well known for his humanity to animals. Twenty-four years afterwards we received a letter to the effect that 'Cappy,' the horse referred to, had reached the age of twenty-eight years; that he had earned for his owner hundreds of pounds, and that during the long period he had been in his possession he seldom had to call in the aid of the veterinary surgeon. This long service, good health of the horse, and the pecuniary benefit derived from his labour, was attributed to kind treatment, plenty of food, proper shelter, and to not working him too hard or too long. Some time after this, this valued servant became infirm, and it was deemed advisable, to prevent unnecessary and lingering suffering, to end his life, which was done in the speediest and most merciful way that humanity could dictate.

Some time since we visited a horse, pony, and donkey show held in Brighton. In that show was a horse twenty-seven years old, who had been in the charge at Balaclava, in which he received a cut across his face, just below his eyes. The scar seemed to excite great interest on the part of the spectators. This horse was purchased by his then owner eighteen years before, and had been worked every day (Sundays excepted) ever since. He was in good condition, sound in wind and

limb, and had up to that time performed his daily labour with comparative ease, while his appearance justified the belief that he would be able to perform his work for some time to come. We hardly need say his master was a kind one, and that this horse's long life and excellent condition were simply owing to great care, proper food and rest, and to humane treatment.

Kindness is in every way more profitable than cruelty. By it you gain the love and confidence of animals; and surely there is pleasure in the thought that you are beloved even by an animal, be it your horse, dog, or anything else. Kindness saves many a blow, and a pull, and prevents many bad ebullitions of temper.

The reward of kindness to dumb animals is a return of their gratitude. In this particular many of them teach a lesson to man. Feed a starving dog, protect him against threatened punishment, speak kindly, and look gently upon him, and he will never forget you. If he has no other master, he will adopt you; if he has no other home, he will attach himself to yours. He will show his gratitude by his constancy. Poverty may smite you, but he will not forsake you; he is satisfied with rich fare, and contented with a humble meal if he may but share with you. He would not sacrifice the company of his master, however lowly his lot in life may be, for that of the richest nobleman; neither would he exchange his straw bed in a poor cottage for one of down in the palace of a prince.

You may be sick, and lack proper attention from human beings, but your dog will cling to you, and evince all the solicitude imaginable for you in your suffering condition; you may even die and be carried to the grave,

'Unwept, unhonoured, and unsung,'

so far as your fellow-men are concerned, but your dog will whine your loss, and it may be keep vigil over your grave. Returns like these are surely worth a few kind words, looks, attention, and proper treatment.

Kindness to animals is a Christian duty, inculcated by the precepts of Christ. To make ourselves happy we must try to make other beings so. If we try to throw a little light on the life of the humblest creature, sunshine will fall upon our

own path. If we scatter the seeds of kindness wherever we go, and exercise a genial influence wherever we can, we shall reap the fruits of it in our own hearts. The thought of having done a kind act to others helps to soften our own sorrows, and to give us strength in the struggle of life. By the merciful mercy may be expected, and they will obtain it.

But those who show no mercy, either to man or animals, have no right to suppose it will be extended to them, not even at the time when they most need it. If men who own, or have the care of, animals, to whom they are so much indebted for the comforts they bring them and the services they render them in giving them labour and supplying them with food and raiment, do not exercise kindness towards them, they have no reasonable grounds for expecting the blessing of Him on whom all alike are dependent for life and sustenance.

Every tribe of animals, bipeds, quadrupeds, birds, reptiles, fishes, and insects of every kind, constitute a link of Nature's chain, not one of which can be dispensed with without affecting the harmony and beauty everywhere existing, and interfering with the purposes for which animals have been brought into existence.

Are not men and animals members of the same creaturehood? And is not God the universal Father of all?

The same power and wisdom which have given to some animals the greatest share of physical strength and sagacity formed the fragile, flitting moth, and the ephemera whose span of life is but from the rising to the setting of the sun.

The same power which created those heavenly choirs who attune their lyres, and in celestial strains celebrate the praises of the one great Eternal in the high courts of heaven, has also given to Nature's feathered songsters ability to pour forth their melodious notes and sweet songs in our fields, woodlands, and groves.

The power which gives to the sea its ever-rolling motion, and mighty unceasing roar, and to the rivers and streams their perpetual murmurings, has also made the smallest insects to hum their own music, and furnished them with capacities to enjoy their life, either in the earth, air, or water.

Whatever the powers, habits, necessities, and situations of animals may be in nature, they have their uses, and in her

economy are capable of fulfilling the purposes they were intended to do.

May those animal voices and pleadings which come from the deep sea—from impenetrable forests—from woody glens —from fertile valleys — from rocks and mountains—from beneath the surface of the earth—from green fields, trees, hedgerows, gardens, fruits, and flowers, as well as the voice of the chartered rights of all the tribes of the animal kingdom, not only reach our ears, but touch our hearts, and teach us to be humane. We shall then not only glorify our Creator, and promote our own happiness, but also aid in lessening the needless sufferings of animals and in giving a bright side to their life.



THE END.

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